Exploring the use of mobile information and communication technology by people with mood disorders, and their health and social care professionals

Thesis submitted for the Degree of Doctor of Philosophy

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Abbreviations

Constructivist grounded theory	CGT
Community mental health team	CMHT
Community mental health nurse	CMHN
Electronic patient record	EPR
Grounded theory	GT
Hamish Fulford	HF
Human-computer interaction	HCI
Information and communication technology	ICT
Linda McSwiggan	LMcS
Mobile information and communication technology	mICT
National Health Service	NHS
NHS Research & Development	R&D
NHS Research Ethics Committee	REC
Social networking site	SNS
Steve MacGillivray	SMac
Thilo Kroll	TK
User-centred design	UCD

Publications

Fulford, H., McSwiggan, L., Kroll, T., & MacGillivray, S. (2016). Exploring the Use of Information and Communication Technology by People With Mood Disorder: A Systematic Review and Metasynthesis. *JMIR Ment Health, 3*(3), e30. doi: 10.2196/mental.5966

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Since starting my PhD in 2013, I have become a father twice, moved home twice and started a new career – it has been quite a journey. As they say, every journey starts with the first step; I would have found it very hard, if not impossible, to keep going on my adventure if wasn't for the support and love of the following people. Firstly, I would like to thank my academic supervisors: Dr Steve MacGillivray, Dr Linda McSwiggan and Professor Thilo Kroll. Their style of supervision was well suited to my learning needs, providing me with sufficient space to explore the research arena; yet versatile enough to respond and provide support quickly when it was required. Their patience, understanding and academic maturity helped soften the ups and downs of doctoral study, supporting me to 'hold fast' through the existential storms that passed by along the way. This PhD would not have been possible without the participants; those experiencing mood disorders, and the professionals who supported them in their recovery; generously offering me their experiences, often at difficult times in their lives and fitting me into very busy work schedules – thank you very much. I would like to thank my fellow PhD students, especially Andy Quigley, with whom I shared a room and developed training plans, Waleed Alrajhi, for our wee metaphysical conversations, and Constantina Papadopoulou, my go-to friend when it came to anything qualitative or Greek. Of course, I need to thank my family, firstly my Mum for her love and support through the ups and downs over the years, and my late Dad, who I know would have been very proud of me for attaining my doctoral degree. I've been unpacking many of his books recently into my new home; I can see where my inquisitiveness and love of learning comes from. I'd like to thank my brother, Duncan, for his inspirational messages and my best friend Jonathan, for keeping it real. I'd like to thank my daughters; Iva, for growing up with the PhD and helping me take my mind off things and just playing, and Aleighla, for reminding me why I chose to start this crazy adventure in the first place. Lastly, but most importantly, is the recognition of my fellow traveller on the journey, without whom and without her grace, this adventure would not have been possible, my beautiful wife, Kari, thank you. We made it.

Declaration

Candidate's Declaration

(i) I, Hamish Fulford, hereby certify that I am the author of the present thesis; that, unless otherwise stated, all references stated have been consulted by me; that the work of which the thesis is a record has been done by me; and that the thesis has not been submitted in any previous applications for a higher degree.

Date…31/08/2017………… Candidate's Signature
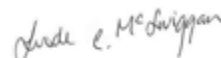
Supervisors' Declaration

(ii) We hereby certify that the candidate has fulfilled the conditions of the relevant Ordinance, and Regulations of the University of Dundee, and that as such the candidate is eligible to submit the following thesis in application for the degree of Doctor of Philosophy.

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Abstract

Background and objectives: Information and communication technologies (ICTs) have been in use in the health setting since the time of the first telephones. However, the advent of computers, personal-computers (PCs) and, more recently, mobile information and communication technologies (mICTs) such as mobile phones, smartphones, tablet-pcs and laptops, has seen technology become increasingly integrated into how care is delivered and received. No research has yet explored how people with mood disorders use mICTs in their everyday lives and, more specifically, how they might use mICTs to look after themselves. This oversight has led to technology redundancy and high attrition rates in the use of this type of technology. Further research was therefore required to understand the meaning that this type of technology holds for people with mood disorders. This qualitative study aimed to explore the views and experiences of people with mood disorders, and their mental health and social care professionals, in using mICTs.

Design and methods: A meta-synthesis was completed, guided by the work of Sandelowski and Barroso, using thematic synthesis an approach, as designed by Thomas and Harden. An exploratory qualitative approach, using in-depth, semi-structured interviews with 26 patients with mood disorders in secondary and specialist mental health services, and ten mental health and social care professionals, was subsequently employed. Participants' datasets were analysed using Constructivist Grounded Theory (CGT). Grounded theory (GT) involves the gradual identification and integration of categories of meaning from the data, and the identification of relationships between them.

Results: The rigorous and systematic nature of the meta-synthesis identified shortcomings in current research and clearly identified a gap in the research literature regarding mICTs and mood disorders. The in-depth primary study created a theory explaining how mobile technology was used in daily life, and also, more specifically, how it was used to manage recovery from mood disorders. The core category and participants' main concern that emerged from the data, forming theory, was 'Centrality; through praxis of interconnectivity'. Patients with mood disorders used their mICTs to stay central within their on-and-offline worlds and held them central in their importance of attachment. Health and social care professionals worked around their provision of basic mICTs and lack of informational support when using them with their patients. Centrality was achieved through the 'Praxis of interconnectivity'; the act of managing their connectedness using mICTs. This interconnectivity was not fixed; instead, it offered

fluidity for participants to manage their continuums of use through their 'Outsourcing of needs', 'Management of needs', and 'Disconnection of needs'.

Conclusions and future implications: This study refocused the attention of ICT research onto arguably the most important person, the end-user, and, in this instance, the people recovering from mood disorders, and their health and social care professionals. The CGT provided, for the first time, a theory that explained how people made use of their mICTs. Additional research is warranted to further understand the transferability of the theory to other client groups, and, in so doing, whether it can be transformed into a formal theory. Also, further research is recommended to translate the theory into practical tools for clinicians; for example, the creation of an mICT self-management questionnaire or a digital hygiene support package. Both patients recovering from mood disorders, and health and social care professionals, can utilise the findings of this study to help make sense of their mICT use. The study findings can also help inform and encourage the further incorporation of mICTs into the health and social care settings; spanning the therapeutic to systemic levels so that the full potential of these ubiquitous technologies can be harnessed to improve care and care delivery.

Foreword and overview

The often recurrent nature of mood disorders has become a major challenge facing the National Health Service (NHS) in its support of people with long-term conditions. People with mental health problems experience higher mortality rates and co-morbidities such as cardiovascular disease and diabetes. Prevalence rates of mood disorders are highest amongst the most deprived in society those who face the highest health inequalities; an epidemiological pattern reflected in many other countries around the world. Rising incidence, cost of care, and issues with accessing evidenced-based interventions has necessitated new approaches to enable patients to manage their conditions. Identifying and understanding new approaches for managing long-term conditions can improve the range of treatment choices that are available to people and can increase the likelihood of finding an option that is right for them.

This problem, therefore, formed the basis of my application for a clinical academic PhD studentship, match-funded by the University of Dundee and NHS Tayside. My first career was in archaeology and whilst I enjoyed exploring the past lives of people, I held a keen interest in mental health and how the mind worked throughout this time. So much so, that in 2004 I decided to change careers and complete mental health nurse training. An aspect of the training which I found very interesting was the use of counselling skills and the different talking therapies used by mental health professionals. To continue my interested in this area and enhance my therapeutic skills, on finishing my Bachelor in Nursing in 2008 I started an MSc in counselling and psychotherapy, a component of which was the completion of a research dissertation. Since completing a Post Graduate Diploma in information technology in 2001, I had been interested in the use of technology and this interest transitioned into its uses in therapy. Therefore, the research dissertation enabled me to explore my interests in technology by researching how people used an online social networking site (SNS) and whether it helped them to meet their emotional needs. The PhD provided me with an opportunity to pursue my interests in how people used technology and apply it to my field of expertise; mental health. The PhD also offered me the opportunity to pursue in greater breadth and depth my preliminary research, allowing me to widen my lens of interest; from focusing on a specific website to exploring the broader uses of mICTs in the lives of people affected by mood disorders, and their health and social care professionals.

Self-management and self-management support are evidence-based approaches that can help reduce the burden of long-term conditions on NHS services and their associated economic and social costs to the United Kingdom (UK). The development of ICTs has offered news approaches for people to manage their mood disorders, and for health and social care services to provide support. EHealth is an umbrella term encompassing all forms of information and communication technology used for direct patient care. EHealth can enable health services to take advantage of the technologies already being used by people in their daily lives. EHealth can facilitate the delivery of a range of effective treatments for mental health problems and has increased the treatment choices available to patients. MHealth is the use of mobile telecommunication and multi-media technologies for the delivery of health and health services. Smartphones and computer tablets are rising in popularity and ownership and have changed the way consumers engage, use and manage their health and their engagement with the health care system. MHealth can provide effective treatment interventions and can support the management of long-term conditions; however, systematic research on the use of these technologies for health outcomes remains scarce. The development of mHealth technology appears to have held a commercial and economic focus to date, where often the patient or end user is not meaningfully included in, or is only a small part of, the design process, leading to redundancy and attrition. Therefore, qualitative research is well placed to help understand the complex social phenomena of mobile information and communication technology use; both in people's lives in general, and, more specifically, as a way to help to look after themselves. This thesis consists of five chapters; the first two chapters provide a rigorous and comprehensive review of the literature with the subsequent three chapters detailing the methodology, results, discussion and conclusions.

Chapter 1 contains a structured literature review of research relating to mood disorders and ICTs used in healthcare. An overview of mood disorders is provided, including their diagnosis, epidemiology and treatment-related information, such as management strategies. Following mood disorders, ICTs are presented and placed in context, both in terms of their historical development and adoption within health care. This includes the review of literature relating to the uses of hardware and software technologies. Qualitative and quantitative literature is thematically reviewed, discussed and appraised to highlight current gaps in ICT research. Human-computer interaction and user-centred design principles stress the importance of conducting qualitative research to understand the complex interaction people have with technology. Therefore, a need was identified

to conduct a meta-synthesis, examining how people with mood disorders used mobile technology.

Chapter 2 reports the conducting of a meta-synthesis of qualitative studies in order to understand what qualitative research had been undertaken relating to ICTs and mood disorders in order to consolidate this field of research. The methods and findings of the meta-synthesis are reported, and their implications for the current understanding of eHealth and mHealth research are discussed. Recommendations are then made for further empirical qualitative research regarding how people with mood disorders, and their health and social care professionals, used mICTs.

In Chapter 3, the objectives and research questions for the in-depth primary study are determined. The ontological, epistemological and axiological stances underpinning the study are discussed. The chapter continues by explaining the methodological approaches available to me, as the researcher. This is followed by a rationale for choosing constructivist grounded theory (CGT) above other methodologies before presenting CGT in detail. The chapter continues by describing the methods followed during the completion of the study. This includes the sampling strategy, patient and professional eligibility criteria, data collection and analysis procedures, and ethical considerations related to the empirical study.

Chapter 4 sets out the findings of the in-depth primary study derived from the interviews with patients, and their health and social care professionals. The numbers recruited, the overall sampling quotas achieved, and demographic information are presented, before introducing the theory explaining mICT use by patients and their professionals. This chapter continues by presenting, in detail, the main concern, 'Centrality; through praxis of interconnectivity', and its theoretical categories and their inter-relationships with subordinate themes. This contextualises the main concern within its theoretical and conceptual framework.

Finally, Chapter 5 discusses the theory in relation to the existing and wider ICT context literature. A summary of the emergent theory is provided and its credibility evaluated before discussing the strengths and limitations of the empirical study. The Chapter concludes by outlining the implications for clinical practice and making suggestions for future research.

Chapter 1: The role of information and communication technologies (ICTs) and mobile information and communication technologies (mICTs) in managing mood disorders

Introduction

This chapter presents an overview of the use of ICTs within healthcare, specifically; uses relating to mood disorders, such as; bipolar affective disorder, and depression. This overview will contexualise mood disorders within the historic context of health informatics, and, also, will summarise the research to date. Globally, one in five adults have experienced a common mental disorder within the past twelve months, and 29.2% will experience a common mental disorder at some point during their lifetime (Steel et al., 2014). Within Europe, mental health issues account for just fewer than 40% of all years lived with disability, with depression being the leading long-term condition, at 13.7% of the disability burden (The Scottish Government, 2012). This study focuses on mood disorders, due to their prevalence and their often debilitating effects upon the person living with the condition(s), their friends and family, and the impact that they have upon wider communities and society (Knowles et al., 2014). To gain an understanding of what is currently known regarding ICT use, it was necessary to capture what hardware and software technologies were being used and for what purposes. To do so, a broad scope of the literature from various sources was reviewed to highlight current limitations and gaps in ICT research.

Background review methods

A structured review of published research, policy, and professional guidelines was completed to answer three broad background questions; firstly, what are mood disorders? Secondly, what is the role of ICTs? And lastly, what is the role of mICTs? Research papers were identified by using search strings formed around three themes; systematic reviews, ICTs, and mood disorders. Four electronic databases were searched in November 2013 (Medline, CINAHL, PsycINFO and Embase) with limitations; English language, systematic reviews, full text and published within the past ten years, returning 5146 results (Appendix 1). After screening by title and abstract, 28 systematic review papers informed the background chapter (Appendix 2).

What are mood disorders?

Epidemiology and diagnosis

Mood disorders are a diagnostic category containing, amongst others, diagnoses such as bipolar affective disorder and depression (Power, 2013). Depression is increasingly considered to be a long-term condition due to high recurrence rates (Houle et al., 2013). At least 350 million people have depression and it is estimated that by 2020 it will become the leading cause of disability worldwide, second only to cardiovascular disease (World Health Organisation, 2012). In 2009 – 2010, 8.6% of people in Scotland were diagnosed with depression, 11.5% in Northern Ireland, 7.9% in Wales, and more than one in ten people (10.9%) in England (Sweet, 2011). People with mood disorders also face stigma and less favourable attitudes from community facilitators, for example, the police, teachers, pharmacists, clergy, and nurses (Scheerder et al., 2010). Therefore, in order to effectively manage their health and wellbeing, people with mood disorders may have to master a range of skills and make lifestyle changes, either independently or with the support of others, such as family, friends, third sector services, and mental health and social care professionals (Houle et al., 2013). The Scottish Government has highlighted that prevalence rates of mood disorders are highest amongst the most deprived in society; those who face the highest health inequalities also face higher mortality rates and an increased prevalence of long-term conditions such as cardiovascular disease and diabetes (The Scottish Government, 2012), an epidemiological pattern reflected in many other countries around the world (World Federation of Mental Health, 2012). The DSM IV has estimated that:

> *At least 60% of individuals with Major Depressive Disorder, Single Episode, can be expected to have a second episode. Individuals who have had two episodes have a 70% chance of having a third, and individuals who have had three episodes have a 90% chance of having a fourth.* (American Psychiatric Association, 2000, p. 372)

These statistics reinforce earlier studies indicating recurrence rates to be the norm, with 80% recurrence rates over a five-year period (Roy-Byrne et al., 1985), and Mueller et al. (1999) identifying an 85% recurrence in a 15-year prospective study.

Experiences, problems and difficulties

Mood disorders can be caused by several complex and often inter-related factors. These are exemplified by biopsychosocial determinants such as subtle changes in serotonin and

dopamine levels in the brain, loss of a job, death of a loved one, stress, and financial pressures; all of which could have an impact on someone's likelihood of developing a mood disorder (Garcia-Toro and Aguirre, 2007). Depression, the most common mood disorder, is a heterogeneous and broad diagnosis, central to which are the concepts of depressed mood and/or loss of pleasure in most activities (NICE, 2010). The ICD-10 states that in mild, moderate or severe forms of depression, a patient would suffer from lowered mood, decreased activity and a reduction of energy (World Health Organization, 2010). A typical depressive episode would include symptoms such as those described in Table 1.

Table 1: Symptoms of depression

F32 Depressive Episode (World Health Organization, 2010)
Reduced concentration, interest and capacity for enjoyment
Commonly, marked tiredness after minimum effort
Disturbed sleep and diminished appetite
Reduced self-esteem and self-confidence
Some ideas of worthlessness or guilt
Loss of pleasurable feelings and interest
Early wakening
Diurnal variation
Psychomotor retardation, agitation, weight loss, loss of appetite and loss of libido
The lowered mood would vary little from day to day and be unresponsive to circumstances

The severity of an episode would depend on the number of symptoms present. This would range from two or three symptoms for a mild depressive episode to several marked symptoms of a distressing nature for severe depression, which would likely include suicidal ideation and suicidal acts along with somatic symptoms, such as psychomotor retardation, agitation and weight loss (World Health Organization, 2010).

The treatment of depression takes into consideration a combination of biological, psychological and social factors. The National Institute of Health and Clinical Excellence (NICE) has treatment recommendations depending on the severity of depressive symptoms. NICE recommends the use of a stepped-care model (Table 2) with the least intrusive and most effective intervention being offered first; if the patient declines or does not benefit from the intervention, then an appropriate intervention can be offered from the next step (NICE, 2010, p. 33).

Table 2: Stepped-care model

Focus of the intervention	Nature of the intervention
STEP 4: Severe and complex depression; risk to life; severe self-neglect	Medication, high-intensity psychological interventions, electroconvulsive therapy, crisis service, combined treatments, multi-professional and inpatient care
STEP 3: Persistent sub-threshold depressive symptoms or mild to moderate depression with inadequate response to initial interventions; moderate and severe depression	Medication, high-intensity psychological interventions, combined treatments, collaborative care and referral for further assessment and interventions
STEP 2: Persistent sub-threshold depressive symptoms; mild to moderate depression	Low-intensity psychosocial interventions, psychological interventions, medication and referral for further assessment and interventions
STEP 1: All known and suspected presentations of depression	Assessment, support, psychoeducation, active monitoring and referral for further assessment and interventions

For patients affected by mild to moderate depression, routine prescribing of antidepressant medication is not recommended, instead, one or more of the following interventions are suggested: computerised cognitive behavioural therapy (CCBT); structured group physical activity programme, and/or guided self-help based on CBT principles (NICE, 2010). It is recommended that people affected by a moderate to severe depressive disorder receive a combination of high-intensity psychological interventions and anti-depressant medication with the option for referral to specialist mental health services for multi-disciplinary care (NICE, 2010).

The most common intervention for depression is antidepressant medication. Prescriptions have risen by 334% in England between 1991 and 2009, 88% in Wales between 2000 and 2009, 60% in Northern Ireland between 2000 and 2008 and, 54% in Scotland between 2001 and 2010 (Sweet, 2011). This increase can be explained by a combination of the increased long-term prescribing of anti-depressants, the issuing of prescriptions to people without a diagnosable mental illness, and a reflection of the increased awareness of depression among the general population (Ilyas and Moncrieff, 2012). Of note, however, has been the failure of anti-depressant prescribing levels to decrease since the introduction

of the Increasing Access to Psychological Therapies (IAPT) programme in the UK in 2006.

There has been recognition for some time regarding the limitations in care delivery for people affected by mental health issues and their lack of access to evidence-based treatments, which led to medicalised and inefficient responses to factors associated with social determinants of health (Margaret and Allyson, 2004). Recommended psychological therapies for depression include: behavioural activation; CBT; interpersonal therapy (IPT); mindfulness-based CBT; problem-solving therapy and short-term psychodynamic psychotherapy (SIGN, 2010). The Scottish Intercollegiate Guidelines Network (SIGN) states that practitioners delivering psychological therapies to people affected by depression should: be trained to approved levels of competency, maintain continuous professional development, be registered with an appropriate governing body, and receive on-going supervision (SIGN, 2010). Although there are clear recommendations for treatment through NICE and SIGN guidelines, only a quarter of people affected by common mental disorders (CMD) such as depression were receiving treatment, with 5% receiving medication and 5% receiving a combination of medication and counselling (Richards and Bower, 2011). Three-quarters of adults diagnosed as having sufficient symptoms to warrant intervention were not in receipt of any form of treatment (Sweet, 2011). Barriers to care have included: limits on treatment; patients living in remote, rural locations; and limited psychiatric cover (García-Lizana and Muñoz-Mayorga, 2010). Although not all people with mood disorders are suitable or require psychological therapies, a gap still appears to remain between provision and potential need (Richards and Bower, 2011).

Management strategies

Over 2 million people currently live with long-term conditions in Scotland, and, as such, they are the major users of health and social care support services, accounting for 80% of GP consultations, with numbers estimated to increase with the ageing population (The Scottish Government, 2011). Rising incidence, cost of care and issues with accessing evidenced-based interventions means that new ways are needed to enable patients to manage their conditions (Houle et al., 2013). People affected by mood disorders are required to master a range of skills and make lifestyle changes to manage their condition, either independently or by being supported by health professionals.

Chronic Care Models

The development of Chronic Care Models (CCM) in the 1990s was a response to health care systems that had been designed to treat people who were acutely unwell, and, as such, were often failing to meet the needs of people affected by long-term conditions (Austin et al., 2000). However, over time there were increasing calls to move away from reductionist, biomedical models where the issue rested within problem definition, in favour of approaches where management was not solely based on clinical decision-making (Maxwell, 2005). This led towards collaborative care models where patients were 're-humanised' through approaches that prioritised choice for the person in regards to accessing drug or non-drug treatments (Burton and Maxwell, 2007). Furthermore, few CCM studies started from the expressed views of patients, with most discussions appearing to focus on models of care and organisational delivery. Therefore, the perspectives, meaning and perceived issues faced by patients when living with long-term conditions were overshadowed in the literature by professionally defined treatment options, care delivery, system design and targeted interventions (Yen et al., 2011). When implementing Collaborative CCMs, Woltmann et al. (2012) noted that additional health care costs were not required and that the physical as well as the mental health of patients was improved, and patients affected by complex multiple long-term conditions also found benefit. Also, delivering Collaborative CCMs exclusively via telephone saw promising results and, thereby, a potential to deliver benefits to populations and settings where Collaborative CCMs could not be applied independently (Woltmann et al., 2012).

Self-care, self-management and self-management support

Self-care is an approach for the management of long-term conditions and for supporting a healthy lifestyle as a preventative measure against ill health, and, as such, has become an increasingly important concept in the UK for people affected by long-term conditions (Lillyman and Farquharson, 2013). The concept has guided service design and delivery in order to provide the patient with more choice, control and shared decision-making while making explicit the role that statutory services have in supporting self-care (Department of Health, 2006a; Department of Health, 2006b; Department of Health, 2010).

The World Health Organization (WHO) defines self-care as:

> *Activities individuals, families and communities undertake with the intention of enhancing health, preventing disease, limiting illness and restoring health. These*

activities are derived from knowledge and skills from the pool of both professional and lay experience. They are undertaken by lay people on their own behalf, either separately or in participative collaboration with professionals. (World Health Organization, 1983, p. 3)

Self-care has been found to overlap with similar concepts such as self-help, recovery and self-management, leading, at times, to confusion (Jones et al., 2011). *Recovery* is a term used to describe the main principle in Western mental health services where the aim is to support individuals to manage fulfilling lives and to change negative perceptions of mental health issues (Leamy et al., 2011). *Self-help* refers to more formal approaches in mental health services, including interventions designed to improve access to treatment such as guided self-help for mild to moderate depression and computerised cognitive behavioural therapy (NICE, 2010). A balance between the medical model and recovery-orientated approaches is recommended to re-orientate a move away from a one-directional perspective, to one that encompasses partnership and collaboration, thereby, facilitating improved health outcomes and more appropriate uses of social and healthcare services (Lucock et al., 2011).

Self-management is an evidence-based approach that can help to reduce the burden of long-term conditions on NHS services and their associated economic and social costs to the UK (The Scottish Government, 2008). Self-management is an interactive, dynamic and daily process through which people manage their long-term condition by employing overlapping skills, tasks and processes; a combination of self-monitoring skills and the use of cognitive, behavioural and emotional strategies to maintain an acceptable quality of life (Schulman-Green et al., 2012). For effective self-management, people are required to develop a number of core skills, such as; decision-making, problem-solving, taking action, using resources, and forming partnerships with healthcare professionals, and to utilise these on a regular basis (Deacon and Rickards, 2013). Supporting people to engage in self-management has been recognised as an important element of health and social care and has increased in importance over the last decade (Department of Health, 2011; The Scottish Government, 2008). In their meta-synthesis of adults living with long-term conditions, Schulman-Green et al. (2012) identified a spectrum of self-management processes: 'focusing on illness needs', 'activating resources' and 'living with chronic illness', thereby encompassing;

Physical, psychological, social, spiritual, existential, and system-related processes, reflecting a more holistic picture of self-management and addressing

conceptual gaps in current self-management models. (Schulman-Green et al., 2012, p. 141)

Self-efficacy theory and social cognitive theory are two of the main theories that underpin the principles behind self-management (Bandura, 1989, 1999). Self-efficacy is the most important value indicator when assessing self-management, comprising outcome expectations and efficacy expectations. Efficacy expectations relate to the person's perceived ability to manage a specific behaviour, and outcome expectations are the person's perceived beliefs that a specific behaviour will result in a specific outcomes (Bandura, 1977). In their qualitative study of people living with long-term conditions, Audulv et al. (2009) suggested viewing patients as experiencing conflicting preferences when making decisions about self-management. The decision-making process can be understood as an on-going inner-negotiation between incompatible perspectives – that of medical needs versus social needs (Audulv et al., 2009, p. 287).

Although long-term conditions have a course that develops independently of the specific illness, there are common challenges across conditions. These challenges can include: managing complex regimens; recognising symptoms and taking appropriate action; developing psychological ways to deal with the issues of living with a long-term condition; medication concordance; and interacting with health care systems (Schulman-Green et al., 2012). People's self-management patterns appear to change over time, spanning consistent, on-demand, episodic, and transitional self-management patterns (Audulv, 2013). The concept of self-management has increased in importance as trends within health services have seen a move away from paternalistic, expert-knows-best approaches to a more collaborative and partnership way of working where information is shared and goals are worked towards together (Du and Yuan, 2010).

Also an evidence-based approach, self-management support (SMS) can be defined as:

> *The process of SMS lies within the context of coordinated networks derived from the health and social care system. However, this process remains person-centred and thus any imperative for action is derived from the collaboration between people with long-term conditions and those providing support services. Thus, SM support appears to be a collaborative activity or a range of activities, where the imperative for collaborative action is seen as essential if effective SM is to be facilitated and maintained.* (Jones et al., 2011, p. 180)

As a component of the CCM, SMS approaches have been shown to be effective for a number of long-term conditions, such as heart disease, diabetes and asthma (Chodosh et

al., 2005), however, SMS approaches have only recently been used for people affected by mood disorders (Houle et al., 2013). Supporting self-management can be provided through a variety of options, drawing from such sources as those available in: the statutory and voluntary sector, policy, media, community, those that are neighbourhood-based, and friends and family (Glasgow et al., 2005). Arguably however, the same criticisms that have been raised in relation to CCMs regarding the lack of patient involvement in their design holds true for self-management and self-management support approaches. These programmes have been designed by professionals, mostly without input from people living with long-term conditions, but with the assumption that lay people (or peers) would be helpful in delivering them.

The above approaches for the management of long-term conditions, and, in this instance, mood disorders, are examples of complex interventions within complex systems (Campbell et al., 2000; Shiell, Hawe and Gold, 2008). Complex interventions are constructed from a range of components, acting either independently or interdependently with one another, and are a common feature of many service activities (Campbell et al., 2007), whereas a complex system is:

> *One that is adaptive to changes in its local environment, is composed of other complex systems (for example, the human body), and behaves in a non-linear fashion (change in outcome is not proportional to change in input).* (Shiell, Hawe and Gold, 2008, p. 1281)

Mental health and social care services therefore, can be contexualised as being embedded in the delivery of complex interventions within complex health and social care systems. However, much of the evaluation evidence derived for complex interventions has been drawn from experimental programmes rather than the study of routine delivery of care in different contexts (Medical Research Council, 2008).

The role of ICTs

What are ICTs?

The role of ICTs in facilitating the management of long-term conditions has become an increasingly popular area of research (Connelly et al., 2013; Jin et al., 2016; McDermott and While, 2013; Newman et al., 2011; Perle and Nierenberg; 2013, Taylor et al., 2015). Health care systems designed primarily to treat acute episodes of care have seen a rise in the incidence of long-term conditions, threatening the sustainability of services; risking both the failure to meet the needs of patients with on-going care management

requirements and the delivery of psychosocial interventions (Solomon, 2008). There has been recognition in UK and Scottish Government policy regarding the difficulties that people face when living with long-term conditions, its wider impact on society, and how technology can be used to alleviate them (Department of Health, 2006a, 2006b, 2010, 2011, 2012; The Scottish Government, 2008, 2012). Examples of such technology include: electronic health record systems; electronic record sharing systems; intuitive computer interfaces; behavioural/activity monitoring systems; fall prevention/detection systems; tracking/wander management systems; brain and physical fitness technologies; medication adherence systems; and wireless data communication/networks (Baudendistel et al., 2015; Sheehan, 2011). Research suggests that ICTs are now considered capable of empowering patients to become informed, active users of health care systems, supporting people to management the daily challenges associated in living with long-term conditions, through the development of specific supports, skills and activities (Baudendistel et al., 2015; Bond, 2014). Over the last 10 years, there has been a move away from computer-based applications to cloud-based applications, and more recently, mobile device delivered applications. Mobile device delivered applications or mobile information and communication technologies (mICTs) and their use in mental health are the fields of interest for this study.

Uses in health care

Developing new ways of managing long-term conditions could improve the choices available for people and increase the likelihood of creating an option that is right for them. ICTs, particularly eHealth and mHealth, could potentially offer these new ways of managing long-term conditions such as mood disorders. The term 'eHealth' encompasses forms of ICT applications used for direct patient care, such as the use of the Internet, computer technology and electronic systems that support health care services (Eland-de Kok et al., 2011). Within the research literature there is growing evidence detailing the use of computers and Internet-based interventions for people with mental health problems (Crabb et al., 2012; Griffiths et al., 2010; Kaltenthaler et al., 2008; Van't Hof, Cuijpers and Stein, 2009). EHealth interventions have become affordable, accessible and versatile, for example, through the use of online self-help resources (Van't Hof, Cuijpers and Stein, 2009). Psychological interventions have been effectively delivered through eHealth (Andersson and Cuijpers, 2009), with promising results for people experiencing mood disorders (Bockting et al., 2011), and hold the ability to reach rural areas, within diverse populations and settings (Richards and Richardson, 2012). There are areas of eHealth

where interventions have been found to be less effective, such as computerised cognitive behavioural therapy (cCBT), where only short-term reductions in symptoms have been noted whereas long-term follow-up and function improvement has not been significant (So et al., 2013). Nevertheless, the field of eHealth appears to hold promise for supporting people to recover from mental health issues and, therefore, it is necessary to understand how people make use of it as a resource.

Uses specifically pertaining to mood disorders

EHealth can facilitate the delivery of a wide range of effective treatments for mental health problems and has led to an increase in the choices available to patients for selecting an approach best suited to manage their long-term condition (Eland-de Kok et al., 2011). In their interpretive review of the literature on consumer eHealth, Hordern et al. (2011) identified a number of broad usage themes: electronic patient records; peer-to-peer online support groups and health related virtual communities; and self-management/self-monitoring applications and decision aids, which are discussed below.

There have been concerns from clinicians regarding the adoption and use of electronic patient records (EPRs) and their influence on patient care and service delivery (Terry et al., 2012), and also, in relation to their effects on the patient–professional relationship, particularly privacy issues (Stewart et al., 2010). However, research conducted since the 1980s suggests that patients accept the use of ICTs in clinical care (Aydin et al., 1995; Ridsdale and Hudd, 1994), with the adoption of newer devices such as tablet-PCs also being received positively (Strayer et al., 2010). Incorporating ICTs into the clinical setting and using EPRs with patients does not influence patient satisfaction regarding the patient–professional relationship; rather, attending to interpersonal manner, communication style and computer proficiency may facilitate the relationship (Stewart et al., 2010). The UK Government had set a target for people to have access to their electronic patient records (EPR) by 2015, with the accompanying rationale citing several benefits for the patient in their use, namely; improved communication, time savings, safety, patient involvement, convenience, and the gaining of a sense of control over their health conditions (Fisher, 2013). Unfortunately, the intersection between the practices of health and social care professionals and their use of ICTs contains considerable knowledge gaps, which is an important factor in the link between uncertainty regarding the technology and the continuing obstacles that patients face when attempting to access their EPRs in primary and secondary care (Lanham et al., 2014).

Social networking sites and Internet support groups (ISGs) provide both benefits and challenges for their consumers. ISGs are a popular method used by people with similar health conditions to communicate with one another online (Griffiths, Calear and Banfield, 2009; Griffiths et al., 2009). It has been suggested that peer support can improve mental health conditions such as mood disorders by increasing the social resources and support in people's lives (Cooper, 2013). However, due to the paucity of empirical evidence, further systematic studies of the groups, further studies on the impact that social networking has on such conditions, and the characteristics of their users, has been recommended (Griffiths, Calear and Banfield, 2009; Griffiths et al., 2009). Microblogging sites, such as Twitter, might provide an ideal way for delivering and constituting improved quality of life for people living with long-term health conditions (Pulman, 2009). There is limited, but promising, evidence to show that social networking sites and ISGs can be beneficial for people experiencing pain (Bender et al., 2011). However, Pulman (2009) suggests that current perspectives on the integration of health information and Web 2.0 technology are primarily viewed from healthcare and medical perspectives.

The technology provides a medium for communication between health professionals and patients where information about the patient's disease, treatment and therapeutic interventions can be discussed (Eland-de Kok et al., 2011). In contrast to other forms of patient contact, eHealth provides the opportunity for asynchronous communication. Research is necessary to understand why patients use the Internet for health-care information and services, the subsequent actions they take, and how this affects their health status and behaviour. Patients are required to navigate certain obstacles when using eHealth, however, research suggests that technology offers the potential to enable patients to better manage their long-term health conditions through its use (Angel et al., 2015, Eland-de Kok et al., 2011).

Telehealth refers to the devices that people affected by long-term conditions use to monitor their own health (Dewsburys, 2012). Studies have highlighted the effectiveness of telephone-based interventions, for example; in the support of people with mental health conditions (Leach and Christensen, 2006; Perle and Nierenberg, 2013; Van Allen, Davis and Lassen, 2011), successful tele-monitoring of conditions (Paré, Jaana and Sicotte, 2007), and coaching people with long-term conditions (Hutchison and Breckon, 2011). Telemedicine is the term used to describe the use of video or telephone technology to

diagnose and treat patients (Eland-de Kok et al., 2011). Telecare systems, which are systems that link people (usually ambulatory) with their health and/or social care services, have been in use since the early 1990s. They were promoted as a solution to equity, access of care, and as a method of supporting people to engage in self-care in the community (May et al., 2011). The use of ICTs in psychiatry, known as Telepsychiatry (TPS), is a method that has become increasingly popular to deliver psychiatric treatment to people living at a distance from service delivery (García-Lizana and Muñoz-Mayorga, 2010). TPS has two main uses; firstly, to improve the access to services where numbers of specialists are limited or delivered in remote areas, and, secondly, to improve relapse prevention and disease control (García-Lizana and Muñoz-Mayorga, 2010). TPS returns high levels of patient satisfaction and García-Lizana and Muñoz-Mayorga (2010) argue that ICTs should play a central role in the redesign of health systems to improve the quality of patient care for those suffering from mood disorders. However, in terms of their cost effectiveness and long-term benefits, further research is required to understand more fully the impact that this technology has on people's recovery (McLean et al., 2013; Paré et al., 2010; Wootton, 2012).

The role of mICTs

What are mICTs?

MHealth is a burgeoning field within eHealth. To date, no gold standard definition of mHealth has been operationalized within the literature; therefore, within this study the World Health Organization's definition will be used, which defines:

> *MHealth or mobile health as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices. MHealth involves the use and capitalization on a mobile phone's core utility of voice and short messaging service (SMS) as well as more complex functionalities and applications including general packet radio service (GPRS), third and fourth generation mobile telecommunications (3G and 4G systems), global positioning system (GPS), and Bluetooth technology.* (World Health Organization, 2011, p. 6)

MHealth is the use of mobile information and communication technology (mICT) to deliver support at the point of care. The universal popularity and ubiquity of mobile phones, along with their increasing functionality, have positioned them as being ideally suited for the delivery of interventions and the dissemination of large-scale public health information (Harrison et al., 2011). For example, mobile technology may hold the potential to improve people's physical health as emerging evidence shows short-term

gains in quitting smoking (Whittaker et al., 2012a), increased physical activity and weight reduction (Stephens and Allen, 2013), and improved glycaemic control and self-management in diabetes (Cafazzo et al., 2012; Liang et al., 2011). Mobile phones are also well suited for mental health care and the rapid diffusion of communication technology over the last decade has provided opportunities to enhance the delivery of mental health services (Bakker et al., 2016).

The Internet and cellular communications have begun to replace the more traditional workstations such as desktop and laptop computing (Ehrenreich et al., 2011). Certain patient groups are now emerging that have grown up using mobile phones and handheld computers and these individuals will expect to be able to use this technology in a variety of ways, one being to access healthcare services. They are popular and increasingly becoming embedded within society across incomes, cultures and ages. They are also location-independent, usually turned on, often connected to the Internet, carried on the person, and personalised (Proudfoot, 2013). Mobile phones, therefore, offer an opportunity to access and understand the person in a way not seen before, such as; through their ability to monitor progress, access health information, receive personalised prompts and support, collect ecological valid data, and to use self-management interventions when and where required (Bakker et al., 2016).

There are over 7 billion mobile-cellular subscriptions worldwide, with mobile phone penetration rates reaching 97% globally, mobile broadband reaching 47% penetration rates globally, and the proportion of the global population covered by at least 2G mobile-cellular network reaching 95% (ITU, 2015). Costs of ownership and use of broadband and mobile networks continue to fall, bridging the digital divide for socio-economic groups unable to afford a computer. This has also helped bridge the health divide for hard-to-reach and underserved populations. In the United States, one in three people have used their mobile phone to access health-related information, and one in 5 have a health app on their phone (Fox and Duggan, 2012). A study of the Australian general public regarding the use of mobile phones for self-managing and monitoring mental health, conducted by Proudfoot et al. (2010), established that the majority of focus group participants (70%) and survey respondents (76%) would be interested in using their phones for these purposes. Mobile phones are the preferred means of communication by young people, the age group most likely to suffer from mental health problems and not seek treatment (Oliver et al., 2005). Although the appropriation of mobile phones for

managing and monitoring mental health is still in its infancy, especially using mobile software applications, or, 'apps' (Harrison et al., 2011), there appears to be a growing interest in their use and acceptability by people.

Uses in health care

For the patient, mHealth can provide a range of programmes in effective and convenient ways, often undeliverable by many other forms of technology (Nacinovich, 2011). They give patients more ownership over their condition, complementing strategies to reduce healthcare pressures by facilitating self-management; all on a device that is often never further than an arms-length away (Moore, 2012). Smartphones are increasingly playing a role in facilitating people to manage long-term conditions and are becoming viable options for enabling health professionals to remotely monitor their patients (Mosa, Yoo and Sheets, 2012). Clinician-led disease prevention, education and management through smartphones has been found to be effective and convenient (Mosa, Yoo and Sheets, 2012). Mobile and wireless health, therefore, holds the potential to advance research, improve diagnostics, prevent disease, increase access to health services, reduce stigma, lower health care costs, prevent disease, reduce disparities, and provide real opportunities for understanding and treating long-term conditions (Nilsen et al., 2012). Since their first release in 2007 by Apple, automated and tailored programs can be delivered through application software or 'apps' on the Internet or they can be downloaded onto smartphones and tablet devices. Apps have risen greatly in popularity, as has their use by health professionals, patients and the general public. In healthcare, these apps can be used with or without clinician contact for prevention, early intervention and treatment purposes. MICTs can also be used for keeping a personal journal, remote coaching, making you seem more popular, increasing access to health information, and making use of available entertainment apps (Klasnja and Pratt, 2012). A number of games have been developed to motivate health through gaming and augmented reality games, which superimpose health information on real-world objects using avatars (Klasnja and Pratt, 2012). Nevertheless, the field of mobile phone games for health remains in its infancy.

Uses specifically pertaining to mood disorders

Over recent years, interest in regards to the Internet as a vehicle to disseminate interventions designed to treat and prevent mental disorders, including those targeted at mood disorders, has increased (Cole-Lewis and Kershaw, 2010; García-Lizana and Sarría-Santamera, 2007; Kaltenthaler et al., 2008; Mohr et al., 2013; Montero-Marín et

al., 2013; Newman et al., 2011; Rosser et al., 2009; Ziebland and Wyke, 2012). In their systematic review, Griffiths, Farrer and Christensen (2010) identified that the Internet was highly effective and facilitative when used to deliver mental health interventions with or without practitioner guidance. Griffiths, Farrer and Christensen (2010) also pointed out that the effect sizes, with or without therapist input, were at least as large as the standardised effect sizes relative to controls discussed in a recent meta-analysis of antidepressant and psychological treatment of depression. Web-based CBT has also been shown to provide small benefits when used to help manage chronic pain (Macea et al., 2010). The increasing trend in Internet use has seen the development of psycho-educational, computer-based monitoring and therapy programmes for mental health conditions, including; eating disorders, Bipolar disorder, substance misuse disorders, anxiety disorders, stress, and depression (Harrison et al., 2011). These programmes have seen high uptake rates, with users displaying positive attitudes towards their use, while outcome data from Randomised Control Trials (RCTs) and meta-analyses have identified their cost-effectiveness and that the clinical efficacy of eMental Health programs have had comparable effect sizes to those obtained by face-to-face treatment (Barak et al., 2008; Harrison et al., 2011).

Using computers to deliver self-management programmes to patients living with long-term conditions in health supported settings have shown potential for changing health behaviour and improving clinical outcomes (McDermott and While, 2013). Bessel et al. (2002) carried out a review of studies evaluating the effectiveness of using the Internet to deliver online educational programmes for eating disorders, smoking cessation and chronic headache with all studies showing positive effects on health outcomes. There appeared to be evidence that Internet-based healthcare materials provided patients with information and support in an efficient way, thereby achieving positive health outcomes. The value of Internet-based interventions using guided self-help for the treatment of different eating disorders in adults have been highlighted in a systematic review by Dolemeyer et al. (2013). Web-based interventions have also highlighted positive effects on patient empowerment and self-efficacy, including in people with physical health conditions, such as cancer (Kuijpers, Groen and Aaronson, 2013; Samoocha et al., 2010).

However, the quality of information on health-related websites can vary, ranging from those with limited availability of help, containing information that is difficult to read and incomplete, to those with high-quality information (Barnes et al., 2009; Moore and Ayers,

2011). Computer-based interventions have limitations; such as the reliance upon users to have access to computers at scheduled times, and restricted and unreliable Internet access in remote and rural areas. Internet technology may have disadvantages, such as software errors, unreliable information, problems with privacy and unreliability, and lack of regulation, can cause social isolation and, in some forms of technology, the loss of vocal intonation and non-verbal communication (Bessel et al., 2002). Internet delivered treatment programmes, such as open access websites, are characterised by poor adherence with an average dropout rate of 31% (Christensen, Griffiths and Farrer, 2009; Melville, Casey and Kavanagh, 2010), with older adults being less likely to drop out than younger adults but more likely to experience technical issues when using cCBT (Crabb et al., 2012). In the past, there has been a lack of rigorous research demonstrating the effects of Internet use on health outcomes and the use of poor methodological quality in many studies (Bessel et al., 2002). Further research is required to explore the variables related to Internet use.

In a systematic review of the academic literature on healthcare applications for smartphones, Mosa, Yoo and Sheets (2012) identified 83 apps; 57 were for healthcare professionals, 11 were for medical and nursing students, and 15 were for patients. Of the 15 patient-focused apps; 6 focused on disease management with chronic illness, 4 were ENT-related, 3 were fall-related, and two were related to other conditions. The chronic illness disease management apps included; diabetes, cardiac rehabilitation, pulmonary rehabilitation, older people with multiple chronic conditions, and asthma (Mosa, Yoo and Sheets, 2012). These historical data suggest that, although there are thousands of apps available to patients as free or paid downloads on app stores, very few appear to have been rigorously tested, validated or evidence-based and there is a call for increasing regulation on this basis (Gerard, Visser and Marshall, 2013; Huckvale et al., 2012; McKinstry, 2013; Moodley, Mangino and Goff, 2013; Pandey et al., 2013; Sucala et al., 2013). Therefore, newer studies are needed, considering the rapid evolution of the field. MHealth faces other challenges not specific to research-informed design, such as privacy concerns, data deluge, regulation and compliance, connectivity, data quality, interface design, certification and authentication, insider risk, and cyber security (Levin, 2012; Wirth, 2012). MHealth has captured the use of mobile telecommunication and multi-media technologies for the delivery of health and health services. Smartphones and tablets are rising in popularity and ownership (Harrison et al., 2011). These mobile devices have changed the way consumers engage with and access the health care system

and manage their health (Nilsen et al., 2012). Although a relatively new field, evidence suggests that mHealth can provide effective treatment interventions and support the management of long-term conditions (Bakker et al., 2016).

As mental health continues to be a major public health concern, researching new technologies that may improve treatment accessibility, increase patient education, increase retention, and reduce stigma are important due to the large societal impact they might produce (Ehrenreich et al., 2011). Mood disorders present a global public-health concern due to their high prevalence and disabling affect, yet, unfortunately, very few people access treatment and seek professional help for this condition (Harrison et al., 2011). Mobile technologies may provide an answer to one of the major issues facing global health: overcoming structural barriers to access (Tomlinson et al., 2013). The use of mobile phones to manage and monitor mental health is at an early stage in development. In the same way as eHealth, this technology has provided a platform for the delivery of psychological interventions, such as CBT and behavioural activation for the treatment of mood disorders, with promising results (Ly, Carlbring and Andersson, 2012; Watts et al., 2013). Although mHealth has grown in popularity over the last decade, pointing towards its development as an autonomous field of study, systematic research on the use of these technologies on health outcomes remains scarce (Dennison et al., 2013; Fiordelli, Diviani and Schultz, 2013). Qualitative research exploring how patients with mood disorders interact, use and value mobile technology for managing their long-term conditions appears to be limited. Developing mHealth technology has been motivated more by commercial and economic reasons rather than research-based motives to date (Martínez-Pérez, De La Torre-Díez and López-Coronado, 2013). For mHealth technologies to be accepted and used by people there is a necessity to understand how they use and embed mobile technology in their daily lives (Poole, 2013). It is argued that there is a need for a patient-centred framework to be developed in order to guide the use of this type of technology for patients with long-term conditions to support, mitigate and improve their quality of life (Pulman, 2009).

Understanding user views and experiences

Human Computer Interaction (HCI) and User Centred Design (UCD) theory are two approaches used in the design of mICTs. HCI originally grew out of computer science and psychology before expanding to research the wider complexities of how people use computers through organisational theories, social sciences, philosophy and cognitive

ergonomics (Adams, Lunt and Cairns, 2008). UCD is an approach that incorporates user-centred activities throughout the design process in the development of applications to influence development and improve the likelihood of its end usability and functionality (De Vito Dabbs et al., 2009). HCI issues are often unknowable before the commencement of research, and, as such, there has been a need to identify:

> *The users' emotional and social drives and perspectives; their motivations, expectations, trust, identity, social norms and so on. It also means relating these concepts to work practices, communities and organisational social structures as well as organisational, economic and political drivers.* (Adams, Lunt and Cairns, 2008, p. 138)

Activity theory provides a theoretical foundation for HCI and UCD research, a social theory concerned with understanding consciousness and activity, whereby:

> ***People*** *act* ***with*** *technology; technologies are both designed and used in the context of people with intentions and desires. People act as* ***subjects*** *in the world, constructing and instantiating their intentions and desires as* ***objects***. *Activity theory casts the relationship between people and tools as one of* ***mediation***; *tools mediate between people and the world. (Kaptelinin, 2006, p. 10)*

The term 'interaction design' relates to work similar to, yet separate from, HCI research and encompasses how people engage with mobile digital technology. For the purposes of the current study, this term is defined as:

> *The process that is arranged within existing resource constraints to create, shape, and decide all use-orientated qualities (Structural, functional, ethical, and aesthetic) of a digital artifact for one or many clients. (Löwgren, 2007, p. 5)*

Therefore, interaction design is more than the specific, micro-level functionality of mobile technology; it encompasses their overall potential, particularly, how mobile technology forms part of wider human activities (Kaptelinin, 2006).

Chapter summary

This chapter has presented an overview of the literature regarding the use of ICTs in healthcare, mood disorders and their self-management, and the different types of ICT hardware and software being used and for what purposes. Although there has been increasing interest in the research literature regarding ICTs, it is evident that mental health

is under-represented, especially from a qualitative paradigm, despite recommendations from HCI and UCD theory to the contrary. ICTs have become increasingly integrated into how care is delivered and received. This is an important area of research as ICTs, which include mobile technologies, hold the potential to reach under-served and hard to reach populations. Such research could be potentially valuable for supporting the acceptance, use and integration of ICTs within health and social care policy and practice; helping harness the technology for their self-management support capabilities and minimise technological redundancy. Therefore, understanding the perspectives of the end-users, in this instance people with mood disorders, and their health and social care professionals is an important area of research.

Chapter 2: The meaning and use of mobile technologies by people with mood disorders: a meta-synthesis

Introduction

To understand what work had been completed in the field of mHealth regarding how people with mood disorders make us of (mobile) information and communication technologies (mICTS) in their everyday lives, and, more specifically, in the management of their long-term conditions, a systematic review and meta-synthesis was undertaken. This chapter seeks to identify and synthesise published qualitative research undertaken in relation to mICTs and mood disorders to consolidate what was known in the field. The chapter will present the practicalities of undertaking the review before highlighting both the current understanding of mICTs through presenting its findings, and also, what future empirical work may be required.

Rationale for focus on meta-synthesis

Initial scoping searches of the literature relating to ICTs and health uncovered that the majority of empirical studies were of a quantitative nature. Further examination revealed that his was in part due to the design of many existing eHealth and mHealth interventions having been based on pre-existing health care system constructs and designed using the assumptions of experts in regards to what the end-user requires, leading to less effective and more compromised interventions (McCurdie et al., 2012). Also, the many complex, multi-faceted, socially based phenomena within HCI research can be difficult to quantify or experimentally manipulate making the process of defining variables for quantitative research very difficult (Adams, Lunt and Cairns, 2008). The development of mHealth technology appears to have been motivated by commercial and economic, rather than research, factors to date (Martínez-Pérez, De La Torre-Díez and López-Coronado, 2013). The main types of research published to date have been outcome studies and randomised control trials, where often the patient or end user is not meaningfully included in, or is only a small part of, the design process (Ly, Carlbring and Andersson, 2012; Ben-Zeev et al., 2013; Burns et al., 2011; Harrison et al., 2011; Watts et al., 2013; Whittaker et al., 2012b). This oversight has led to technology redundancy and attrition (McCurdie et al., 2012). To reduce this trend and to better inform design processes, conducting research that uses in-depth qualitative approaches, can provide an understanding of users' views

and experiences of how mobile technology affects people's lives (De Vito Dabbs et al., 2009, McCurdie et al., 2012). Therefore, a need for a meta-synthesis was identified to understand what work had been completed in the field of ICTs regarding how people with mood disorders, and their health professionals, make use of (mobile) information and communication technologies (mICTS).

Purpose

The aims of the review were to systematically identify and map the use of ICTs in health before synthesising all qualitative evidence on how people with mood disorders used mICTs. To achieve this, the project was divided into two phases. Phase 1 would map the field of health and ICT research, before Phase 2 screened and synthesised data regarding mICTs and mood disorders. The project used the ICD-10 and DSM-5 (American Psychiatric Association, 2013; World Health Organization, 1992) classifications of mood disorder and intended to capture all qualitative data on conditions that were included in them. MICTs were operationalised as comprising hardware, software and communication capabilities specifically designed for mobility, such as laptops, smartphones, tablet devices and personal digital assistants. A copy of the published meta-synthesis can be found in Appendix 4.

Contextualising synthesis

Qualitative research has increased in popularity since the 1990s (Sandelowski and Barroso, 2007). With the fast accumulation of qualitative studies in health sciences and practice disciplines, there was a need to gain accumulated understandings from these studies and lessen the sense of information overload (Sandelowski, Docherty and Emden, 1997). Qualitative research synthesis was an approach developed to make use of this proliferation of qualitative findings driven from the growth of empirical research and evidence-based practice in the 1990s (Sandelowski and Barroso, 2007). The systematic review and meta-synthesis of qualitative papers related to ICTs and mood disorders would identify the current knowledge base, potentially produce new concepts through synthesis, and identify gaps in knowledge requiring further empirical study.

The meta-synthesis process was guided by the work of Sandelowski and Barroso (2007). For the synthesis stage, thematic synthesis was identified as an approach that combined elements of meta-ethnography and grounded theory, providing the opportunity to synthesise methodologically heterogeneous studies (Barnett-Page and Thomas, 2009;

Thomas and Harden, 2008). This heterogeneity complemented the sensitive nature of the search strategy. Philosophically underpinned by critical realism and the belief that 'knowledge of reality is mediated by our perceptions and beliefs' (Barnett-Page and Thomas, 2009), the end product could potentially inform policy-makers, health care practice and intervention design (see Chapter 3 for a description of the philosophical stance underlying the thesis).

Design of the review

Review Questions

The design of the review questions was an iterative process. As previously mentioned, due to ICTs and mobile technology being a relatively new field of research, a sensitive and accommodating approach was adopted. The review questions were designed to reflect the possible dualistic use of the technology, that is to say, Formal-Institutional (mHealth) and the Informal-Interpersonal (existing personal uses), thus exploring the global nature of the adoption of such technology (Glasgow et al., 2005). The review questions were:

1. Why do people with mood disorders use mICTs?
2. What are mICTs being used for by people with mood disorders?
3. What are the perceived benefits and challenges of using mICTs by people with mood disorders?
4. In what ways are mICTs being used for self-management by people with mood disorders?
5. What role, if any, do mICTs play in terms of social relationships for people with mood disorders?
6. What are the views and experiences of healthcare providers regarding the use of mICTs by patients with mood disorders?

Search Strategy

Due to the difficulty in finding qualitative research (Thomas and Harden, 2008), a sensitive systematic search strategy was created to maximise the likelihood of capturing the relevant qualitative literature on the chosen topic. This involved searching conventional sources as well as grey literature. For data management purposes, a pilot search used two electronic databases (Cumulative Index to Nursing and Allied Health (CINAHL) and the psychological literature database (PsycINFO)), which returned

approximately 5000 papers that were screened for mood disorders and ICTs. The process identified that physical long-term conditions, and ICTs of relevance to mobile technology, were the themes most commonly represented in the literature. The pilot search facilitated the iterative development of search terms by helping balance the sensitivity required to capture all relevant data while being workable in terms of data management.

The strategy consisted of two search strings combining thesaurus terms, free text terms and broad-based terms: one for ICTs including mobile technologies; and one for qualitative methods (Table 3). Initially, there were also terms for mood disorder; however, the pilot searches identified the inclusion of this string as being too specific, limiting the aggregative capabilities of the search strategy. The master search string was adapted for each chosen database.

Table 3: Master search strategy

Search strings	Search Terms
Qualitative methods	Mixed method*, theoretical saturation, qualitative research, theoretical sample, focus groups, qualitative studies, purposive sample, constant comparative method, ethnographic research, patient attitudes, observational methods, phenomenological research.
ICTs of relevance to mobile technology	eHealth, mHealth, Android, Blackberry, Windows mobile*, Windows phone*, smartphone*, iPhone*, mobile*, Apple, iPad*, mobile health, electronic health, mobile technolog*, Internet delivered, virtual realit*, Internet treatment, mobile app*, user-centred design, cel* phone*, context-aware system*, touch screen, 3G, 4G, 5G, wireless, Samsung, Nokia, HTC, Sony, Mobile Internet, Mobile phone*, App, Telemedicine, Telepsychiatry, Telehealth, multimedia, social media, Macintosh microcomputers, hand-held computers, World Wide Web applications.

The main search: setting of parameters

Topical

My main interest was in researching how people with mood disorders used mICTs. In the project, mobile technology was defined as wireless or ubiquitous computing technologies that used a combination of hardware, software, operating systems, networking and communication capabilities specifically designed for mobility. Examples included laptops, tablet-PCs, mobile phones, smartphones, wireless access points, personal digital assistants (PDAs) and Bluetooth-enabled devices.

Population

The systematic review included all papers related to health research and mICTs, using a widely accepted qualitative approach.

Temporal

The timeframe, from 2007 - 2014, was determined due to Apple releasing their new wave of smart technology from this date. Their release of the first generation iPhone in 2007 saw the production of similar technology from other companies, and consumers quickly created demand for this technology. Other wireless computing products were released, such as tablet devices, wearable technologies, wireless hotspots and Cloud infrastructures (Regan, 2012). The use of smartphones and other mobile ICTs had become ubiquitous technologies in a short space of time (Bakker et al., 2016). Papers published after the completion of the meta-synthesis are brought into the discussion chapter for consideration (Pg.251-276).

Electronic Databases

Search strings were entered in February 2014 and run in eight electronic databases: Medline, Embase, Cumulative Index to Nursing and Allied Health (CINAHL), the psychological literature database (PsycINFO), Applied Social Sciences Index and Abstracts (ASSIA), British Nursing Index (BNI & archive), Social Sciences Citation Index (SSCI) and the Cochrane Library. The results from each database were exported into Endnote x7 where duplicates were removed electronically and manually. The title and abstracts of the remaining articles were exported into a Microsoft Word document and numbered ready for screening.

Enhancing retrieval of additional literature

To optimise qualitative article retrieval, the following methods were used: footnote chasing; citation searching; journal run; area scanning; author searching; and experts and key authors were contacted to identify unpublished and on-going studies.

Grey Literature

Because the research on the mobile aspect of ICTs is a new field it was envisaged that grey literature might be a valuable source of primary data. Grey literature covers a wide range of material, including: reports, government publications, fact sheets, newsletters, conference proceedings, policy documents, and protocols. The New York Academy of Medicine's Grey Literature report, Open Grey, and Grey Source Index, along with, producers of grey literature on mobile technologies such as government health agencies, non-profit organisations and international agencies, were identified then searched and/or contacted for relevant material. The Internet was also searched for grey literature.

Establishing relevance

As the sensitive search strategy consisted of two search strings that combined search terms for ICTs and qualitative methodologies, the retrieved results provided a heterogeneous and rich source of information. The management of the gathered information through a two-phase process facilitated the ordering of the data. Phase 1 organised the relevant material into population sub-groups that used ICTs relating to health. Phase 2 systematically identified all qualitative evidence on how people with mood disorders used ICTs of relevance to mobile technologies. Certain citations were unable to be included or excluded on title and abstract alone. Therefore a search, retrieval and validation system (Appendix 3) was adapted from the work of Sandelowski and Barroso (2007) in order to improve efficiency. To optimise the validity of the search, 10% of the results were co-screened by the writer's supervisor (LMc) and all questionable citations from the full search results were discussed between the writer and two of his supervisors (HF, LMc and SMac) in order to reach consensus on disposal. All of the Phase 2 results were co-screened for inclusion, with a third person overseeing any result queries (HF, LMc and SMac).

Information management

The management of the information retrieved from the sensitive search results was commenced using a four-phase screening process (Table 4). However, it was quickly

identified as being too sensitive, as all results that included research on ICTs were included, that is to say, those related to education, social work, gaming, etc., that had no direct relevance to health research. This sensitivity resulted in a screening process that was overly sensitive and laborious.

Table 4: Four-phase screening process

Screening Phase	Procedure
Screen 1	The search results were screened and all results were included that used widely accepted qualitative methods to study mobile technologies and/or technologies that could be used and/or accessed from a mobile device.
Screen 2	The results of Screen 1 were screened and all results divided into either Health-related or Miscellaneous sub-group categories.
Screen 3	Health-related sub-group results were screened into either Physical Health Condition or Mental Health sub-group categories.
Screen 4	Physical Health Condition and Mental Health sub-groups were screened into condition-specific sub-group categories.

As part of the iterative nature of the review, the screening process was reviewed and made more specific to concentrate on identifying the health research related to ICTs that was of relevance to mobile technologies (Table 5).

Table 5: Three-phase screening process

Screening Phase	Procedure
Screen 1	Screen and include all results that used widely accepted qualitative methods to study health conditions and the use of mobile technologies and/or technologies that could be used and/or accessed from a mobile device.
Screen 2	Screen Health-related sub-group results into either Physical Health Condition or Mental Health sub-group categories.
Screen 3	Screen Physical Health Condition and Mental Health sub-groups into condition specific sub-group categories.

This new approach to screening made the process more efficient. To facilitate data management during the screening process, a spreadsheet application was used to cross-reference the numbered results from the word processing document when placing them within sub-groups. This was a complicated process that required the use of formulae to produce a filtering system across 11 Microsoft Excel pages in order to guarantee that the results were accounted for and not duplicated between screening phases.

Data management

The synthesis stage used thematic synthesis, an approach that combines elements of meta-ethnography and grounded theory, providing the opportunity to synthesise methodologically heterogeneous studies (Barnett-Page and Thomas, 2009; Thomas and Harden, 2008). The qualitative computer software NVivo 10 was used to facilitate the synthesis process. Papers were exported into NVivo 10 and data were extracted from the results section of each paper using the process set out below.

The thematic synthesis employed the steps described by Thomas and Harden (2008) using a three-stage process:

1. **Free sentence-by-sentence coding: the verbatim findings of each selected study were entered into NVivo 10 for analysis.** 'Findings' referred to all written text under the titles 'findings' or 'results' in the primary papers. Codes were developed, initially free from hierarchical structure, but as the translation of concepts developed from one study to another, new codes were either added to

existing ones or new codes created. Although each sentence was studied, not all sentences received a code; however, it was common for most sentences to receive one code and sometimes multiple coding occurred. Before moving on to step two, all coded text was examined to verify its consistency in interpretation and whether further levels of coding were necessary.

2. **Organisation of free codes in hierarchical order under a range of descriptive themes**: free codes were organised into related areas to create descriptive themes. The similarities and differences between codes were studied, organising the codes into related groups and forming a hierarchical tree structure.

3. **Synthesis – development of analytical themes**: descriptive themes were organised into more abstract analytical themes. This produced a synthesis that went beyond the data in the original studies and addressed the research questions. The process of creating analytical themes was cyclical and was used at an individual and group coding level. This process continued until analytical themes were created to explain or describe all the initial descriptive themes.

In order to keep the synthesis as close to the data as possible, the research questions were initially set to one side, facilitating an inductive process, forming a product shaped by the data, which could then be purposefully viewed through the lens of the review questions, thereby focusing and transforming it into the final synthesis. Each code was studied individually, including its title and the data from which it was generated, before being compared and contrasted with the other codes to see whether it fitted within an existing code thematically or whether it stood alone. This process was repeated for all the codes until higher order categories were constructed and all codes accounted for.

Appraisal process

Assessing and appraising the quality of qualitative studies can be challenging and raises considerable debate (Dixon-Woods, 2004; Dixon-Woods, Fitzpatrick and Robert, 2001; Dixon-Woods et al., 2007; Nicholas and Catherine, 2000). 'Goodness' in qualitative research has historically been based largely on disputes related to reliability and validity, the impact of postmodernist thinking, and the notion of criteria, with one of the most important ideas to come out of the discussions being the trend to distance qualitative research from its reliance on quantitative criteria as a measure of goodness (Emden and Sandelowski, 1998, 1999). Since this move away, the idea has seen further transformations in thought, creating differences in perspectives on the definition and

assessment of goodness and the comparisons placed been qualitative and quantitative research (Sandelowski, 2008). Emden and Sandelowski (1998) argue this separation to be fitting, as qualitative researchers come from different backgrounds, hold different worldviews, and conduct research from different methodological and philosophical positions. In quantitative research, reliability and validity have historically been central concepts when assessing rigour (Barbour and Barbour, 2003). For an experiment to be free from error it must be replicable (reliable), it must measure those things it sets out to measure (internally valid), and it must offer generalisability (externally valid) (Emden and Sandelowski, 1998). Reliability and validity as criteria for rigour in qualitative research has gone through a number of transformations (Emden and Sandelowski, 1998). The use of reliability and validity as criteria for assessing goodness in qualitative research had been surpassed in favour of researchers selecting or developing their own criteria; those that are most appropriate for their research (Rolfe, 2006), an approach which itself has been contested (Porter, 2007). A consensus has yet to be reached on the creation of a formal list of criteria by which to appraise qualitative evidence and the use of composite scales has been contested and debated (Dixon-Woods, 2004).

Due to this dispute, a global assessment of study quality was undertaken using an approach adopted by Morris et al. (2012). Study quality was assessed as either being strong or weak. Strong studies would likely include elements of respondent validation, triangulation of the data, transparency, reflexivity, clear descriptions of the methodology, methods of data collection and analysis, and an overall fit in regards to the research questions and the design of the project (Morris et al., 2012). Reports were both individually and comparatively appraised. A typology designed by Sandelowski and Barroso (2003) for classifying findings was used to identify differences in kind between qualitative findings. Rather than comparing differences in quality between studies, the typology was used to identify the level of data transformation, ranging from; papers evidencing no data transformation, to results displaying conceptual and theoretical levels of data transformation. Papers were not excluded based on their quality, instead, all papers were included and their quality was appraised. Therefore, the results of the synthesis could be measured by the overall quality of the papers included (Sandelowski and Barroso, 2007).

Outcomes of the review

Phase 1

The results of the screening process provided a dataset of qualitative papers comprising sub-groups that ranged from general to condition-specific, those that were mutually exclusive, and usage categories across physical, mental and other health-related domains. These data offered a valuable resource when contextualising the project and for informing future work. The highest number of publications within the Mental Health sub-group was for mood disorders with 67 papers, followed by addiction with 64 papers. The sub-group contained 27 disorders or themes and totalled 421 papers. The highest number of publications within the Physical Health sub-group was for cancer with 136 papers, closely followed by diabetes with 67, and HIV/Aids with 47 papers. The sub-group contained 40 disorders or themes and totalled 577 papers. The highest number of publications within the Other Health sub-group was for electronic health records, with 130 papers, followed by telemedicine, with 86, mICT use with 79, older person with 77, and maternity/paediatrics with 62 papers. The sub-group contained 29 themes and totalled 830 papers.

Phase 2

Screening of Mood Disorder sub-group for mobile technology

The search identified 12,926 titles; 67 publications were retrieved in full (Figure 1). Grey literature was searched using the key words 'mood disorder', 'depression', 'qualitative' and 'mobile technologies' with no results being identified from the search. The reference lists of 67 full-text articles in the Phase 2 mood disorder sub-group were searched. No further citations were identified for screening. The Journal of Medical Internet Research (JMIR) and Biomedcentral (BMC) Psychiatry were hand-searched from 2007 to the present day. No papers met the inclusion criteria for the mood disorder sub-group. Area scans in the University of Dundee's library were undertaken in the mental health and information and communication sections. No material was identified for inclusion. Government websites, such as those of the Department of Health and the Scottish Government, were searched, along with the IEEE website, for related qualitative publications. No additional material was retrieved. No additional data were identified from the above methods, appearing to justify the sensitive search strategy adopted after the initial pilot searches. The fledgling nature of the field of eHealth and, more specifically, mHealth research meant that there was a scarcity of published research

compared with more established fields and this was also mirrored in the grey literature search results.

The mental health sub-group had the least amount of papers published and the smallest range of conditions and themes studied. However, 67 articles met the inclusion criteria for the mood disorder sub-group and required further screening. The 67 full-text articles were screened, firstly using the inclusion criteria set out below, to ascertain whether there were papers specific to mobile technologies and mood disorders:

- Studies that used widely accepted qualitative methods to elicit in-depth experiences with findings appearing well supported by raw data (e.g., participant quotes).
- Study sample included people with mood disorders.
- Study sample includes the use of mICTs.
- Time period: 01/2007 – 02/2014.
- English language.

One paper was identified that focused specifically on mobile technology (Figure 1) and, therefore, unfortunately, a synthesis of literature related to mICTs and mood disorders was not possible due to lack of data.

However, due to the review mapping and the categorising of all qualitative papers in the domain of health and ICT research in Phase 1, a solution was facilitated in relation to how to use imperfect data. The aggregative and sensitive systematic search strategy offered a flexible approach toward the data. This provided me, as well as those who contributed to the review, with the ability to use the existing data to explore how people with mood disorders used ICTs 'of relevance' to mobile technology. How ICTs were accessed was not made explicit within the results of the research papers. For example, a website for mood disorders might be discussed but there would be no mention of the device used to access the Internet, that is to say, whether it was an mICT or ICT.
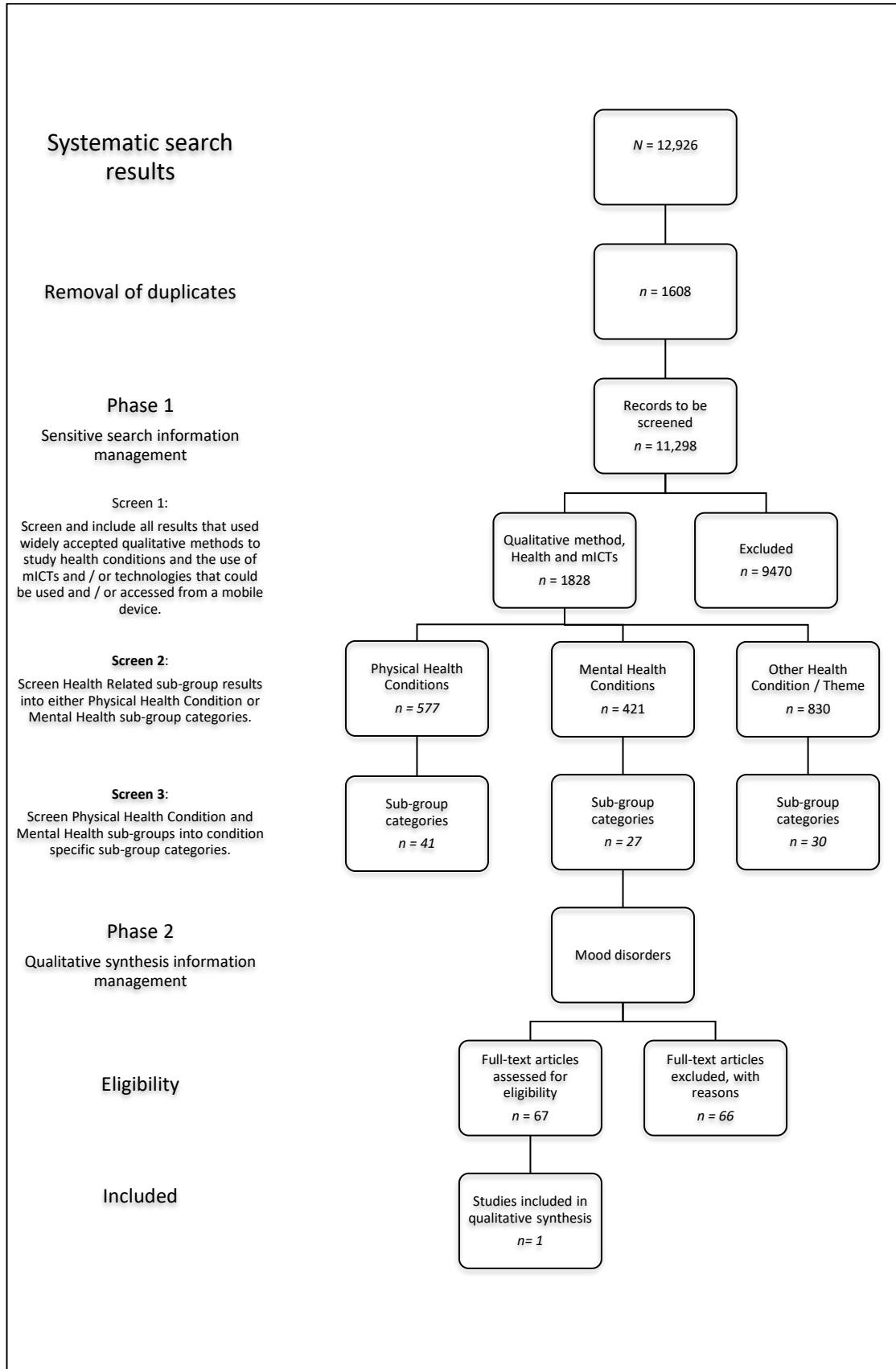
Figure 1: Search results

Therefore, rather than lose the potentially valuable qualitative data of relevance to the project, the 67 full-text papers were rescreened for ICTs of relevance to mobile technology. This included, but was not limited to, ICTs such as; websites, online therapy, online support groups, forums, blogs, and so on, essentially, anything that could be used on, or accessed through, an mICT.

Revised review question: ICTs of relevance to mood disorders

To explore how people with mood disorders used ICTs, the 67 full-text papers were screened for those of relevance to mobile technology.

Study eligibility criteria

For inclusion, papers were required to contain data of relevance to the study of mobile information and communication technologies (mICTs) by people with mood disorders. This included, but was not limited to, information and communication technologies (ICTs) such as websites, online therapy, online support groups, forums, blogs, etc., essentially, ICTs that could be accessed from mICTs but were not necessarily made explicit within the text.

Papers would only be included if the following criteria applied:

- Studies that used widely accepted qualitative methods to elicit in-depth experiences with findings that appeared well-supported by raw data (e.g., participant quotes).
- Study sample included people with mood disorders.
- Study sample included the use of ICTs of relevance to mICTs.
- Time period: 01/2007 – 02/2014.
- English language.

Thirty-four articles met the inclusion criteria (Figure 2). The methodological design of the studies was qualitative or mixed-methods, using focus groups, interviews or forum/message boards as the methods of generating data. Methods to analyse the data included content analysis and the grounded theory approach; and the studies originated mainly from Europe, the U.S.A, or Australia and New Zealand. Further study details can be found in the table of study descriptives (Table 6).
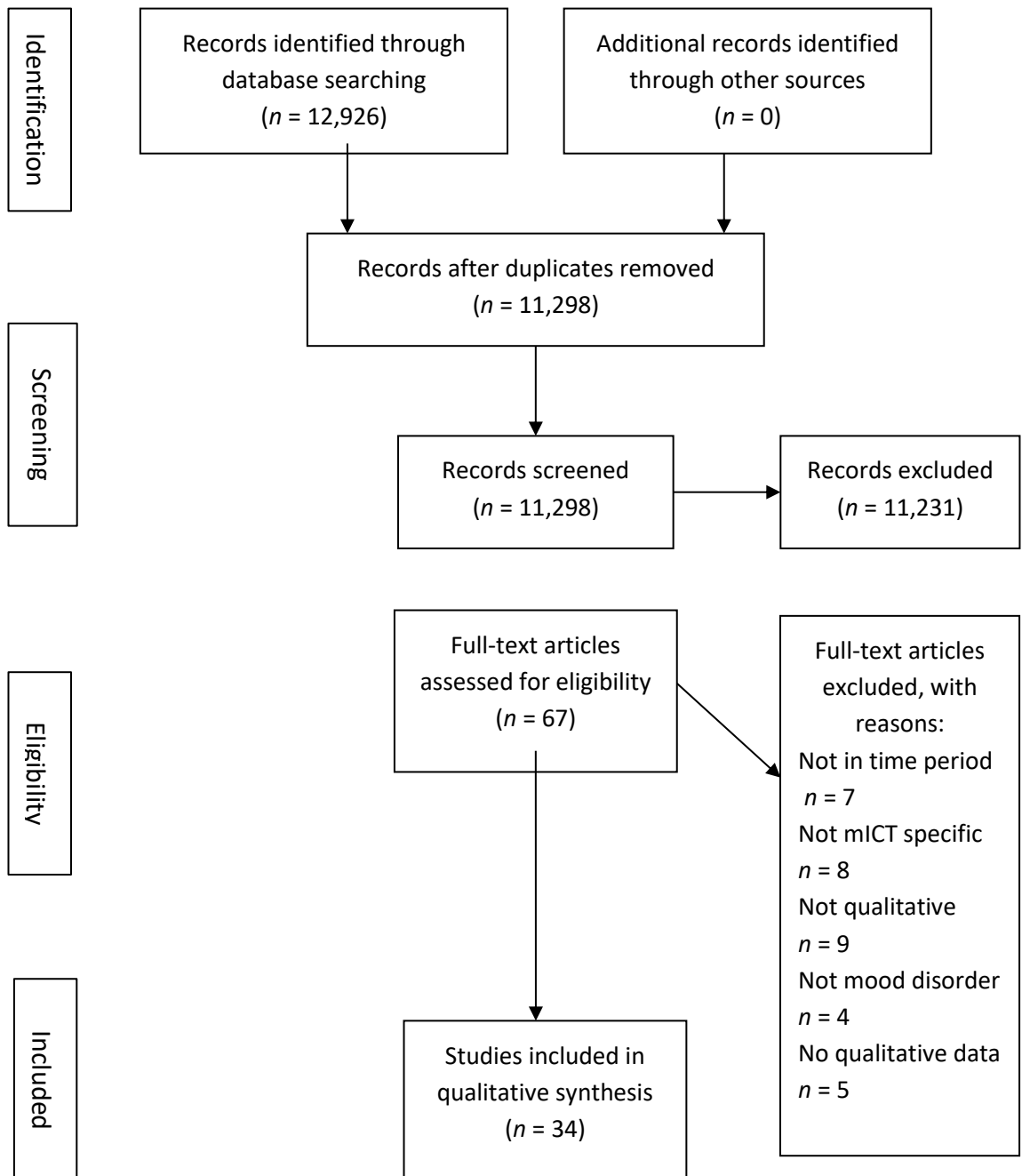
Figure 2: PRISMA diagram of screened articles

Appraisal of literature

The results of the appraisal process are shown in Table 7, with 22 studies identified as being strong and 12 weak, with most having a typology of findings either at topical or thematic survey levels of data transformation.

Table 6: Details of included studies

Study	Theme	Method	Participants	Setting	Summary of findings	Notes
Bae et al. (2009)	Web based / online interventions: self-help / self-management programme	Interviews with people diagnosed with depression and focus groups including patients, mental health professionals and family members.	14 patients who had been hospitalised for depression were interviewed about their most critical symptoms and their needs for the intervention and analysed using phenomenological analysis. Focus groups comprised of 20 participants; 10 mental health care professionals, five patients and five family members.	Country: Korea Service: university researchers recruiting participants with depressive experienced, mental health professionals and family members.	The qualitative component of the design process centred the goals of the programme to on raising awareness of the importance on managing depressive symptoms, promoting mental health and providing evidence based interventions.	User centred design model underpinned intervention design

| Barnes et al. (2011) | Web based / online interventions: psychoeducation | Three focus groups took place providing a framework for iteratively developing an intervention and provided prompting for later focus groups. | Twenty-three people were interviewed over the 3 focus groups. The first group had six participants, the second 9 and eight people in the third group. Each group had a mix of patients and mental health professionals. | Country: UK

Service: university researchers recruiting patients and mental health professionals. | **Individual differences: addressing the needs of a wide spectrum of users-** *variations in symptoms, computer literacy and cognitive ability were seen as potentially problematic.* **Relapse prevention:** *a key point raised by participants was that potential users would want to know was how the condition would affect them and their future.* **Support and stigma reduction:** *a balance should be struck between being educational and providing support. The potential benefit for reducing stigma against BD and encouraging acceptance of the condition was highlighted. 'Real' portrayals of BD were encouraged. A discussion forum would provide access to support* | No theoretical model used to underpin findings. |

					and information. Family members did not often understand the disorder and a module was created for family and carers.	
Bendelin et al. (2011)	Web based / online interventions: online psychological therapy	In-depth interviews with people diagnosed with major depressive disorder	12 participants, 6 female. Age range: 20 to 62, mean age 36.3 years. Education level of college / university or higher. Seven participants were single, 8 were employed, 2 on sick leave and 2 students. 3 participants had previously received psychological treatment.	Country: Sweden Service: academic researchers recruited from a RCT that compared two forms of Internet-based CBT for depression.	**Working process:** reading, giving up, trying to practice, practice and apply insights. **Motivation:** lack of support, insufficient support, proximal support. **Attitudes towards treatment:** disappointed, uncertain, helpful and awareness. **Consequences of treatment:** integrated insights and self-sufficiency. 3 change processes identified: readers, strivers and doers. Therapeutic work is a dynamic process and treatment is perceived	Results corresponded with existing theoretical models of change in traditional face-to-face psychotherapy for depression within qualitative process research.

					differently depending on expectation and outcome.	
Bradley et al. (2012)	Web based / online interventions: self-help / self-management programme	Telephone interviews	Thirteen adolescents (nine girls) took part with ages ranging from 15 to 18 years (M=16.46). Participants were required to have no previous mental health issues and feel into a mild to moderate depressive diagnosis.	Country: Canada Service: university and health researchers recruited adolescents with mild to moderate depression.	**Effectiveness:** perceived to be effective in reducing psychological distress. *Relevant strategies made me rethink my situation-* time management techniques were most beneficial. *Credibility-* demonstrating credibility of the site would be very important. *Web design-* visual design influences experience. **Privacy allows control over disclosure:** participants considered online programmes to be the most private way to seek help. **Capacity to seek help:** online programmes improved accessibility of help only if adolescents were motivated and	No theoretical model used to underpin findings.

					new they existed. *Anyone, anywhere, anytime-* Internet was probably the best way to provide self-help programmes because you could access it anywhere, everyone has a computer and you can reach more people. *You have to want to help yourself-* some distressed adolescents would not use online self-help. *Awareness of online programmes-* greatest barrier to use is not being aware it exists.	
Cheek et al. (2014)	Web based / online interventions: online psychological therapy	Focus groups and semi-structured interviews were conducted with young people attending two youth-focused community services in a small, rural Tasmanian town. Do diagnosis of	16 participants. 12 male and 4 female between the ages of 13 and 18 years old. Four participants reported their ethnicity as Aboriginal, 5 Australian and 7 left it blank.	Country: Australia Service: university research recruiting young people from rural areas who attend community services.	**Personalisation:** having options to make personal choices was consistently valued. It could be used in private or with a counsellor or group therapy. The ability to recommend the programme to a friend who would not otherwise	No theoretical model used to underpin findings.

| | | depression was necessary to take part. | Thirteen of the 16 participants identified themselves as a gamer. | | seek help was valued. **Engagement:** all participants used computers and some used them when feeling down. Distinct split between gamers and non-gamers and intended use of similar ICTs. Alternative methods of access should be available to reflect the different ways young people prefer to get help. **Stigma:** due to stigma and fear of being judged for having depression meant they would use in their own home. Use online chat instead of using local practitioners due to living in a small town where everything is potentially visible- offers anonymity. | |

| Clarke and Sargent (2010) | Information and support: peer support. | Analysis on online message board postings by parents of children who have depression | 66 message board discussions including at least 6 interactions in response to a post. 396 posts were analysed. | Country: Canada

Service: researchers analysed message board postings by parents with depressed children used worldwide. | Childhood depression is thought of in a myriad of different ways. **Moods:** parents describe depression in a wide variety of ways. **Sociability:** some parents think their children do not have enough friends or social life. **Behaviours:** parents point to certain behaviours relating to depression- violence, aggression, sore stomach and attempted suicide. **School:** problems at school are thought to be indicative of depression. **Parental ability to cope:** depression linked to whether parents feel able to cope with child. **Causation- Social:** social origins; attention-seeking, divorce, death in the family. **Biological:** sometime linked to biology and hereditary factors, | No theoretical model used to underpin findings. |

					linked to medications and the brain. **What is to be done about childhood depression:** solutions are limited and always include medical interventions. Also include psychotherapy, CBT support groups, online information and support.	
Danaher et al. (2012)	Web based / online interventions: online psychological therapy	Focus groups with mothers less than 12 months post-partum, home access to the Internet and use of personal email. Had to report a history of depressive episodes in the period following the birth of their baby as indicated in the EPDS and BDI scales.	Australia: 8 women with a mean age of 36.0 years. All were Caucasian Australians from mixed ethnic backgrounds. Iowa, U.S.A: 9 women with a mean age of 29.4 years. Eight mothers identified themselves as Caucasian and 1 as African American.	Country: Australia and U.S.A. Service: university research recruiting mothers who were 12 months or less post-partum and had experienced depressive symptoms in that period.	Support for web forum and partner support features. The use of multicultural video vignettes was endorsed. Encourage skill practice and the use of a personal coach.	No theoretical model used to underpin findings.

Donkin and Glozier (2012)	Web based / online interventions: usage issues	Semi-structured interviews analysed by grounded theory	Participants recruited from a Cardiovascular Risk E-couch Depression Outcome (CREDO) study. All participants were aged over 4 years, had an active email address, history or high risk of cancer and at least moderate depressive symptoms.	Country: Australia Service: university researchers recruiting comorbid cancer and depression sufferers	**Barriers:** time constraints and competing priorities, technology fatigue, anxiety about spending time on the computer away from other daily demands on time and perception of limited worth of the intervention. **Motivations:** participants who persisted with the trial found motivators and motivational strategies to overcome barriers such as developing habits, recognising personal values regarding completion and identifying benefits for others if not obvious to themselves first.	No theoretical model used to underpin findings.
Drake et al. (2013)	Web based / online interventions: self-help / self-	Focus groups	Two focus groups with four and five participants in each.	Country: U.K. Service: university researchers recruited patients	Tool was acceptable overall but clarification of the role and target group was required.	No theoretical model used to underpin findings.

	management programme			from GP surgeries with mild to moderate depression who used the Internet regularly.		
Fleming et al. (2012)	Web based / online interventions: views and perceptions	Five focus groups analysed using a general inductive approach	Thirty-nine young people, 74% males, 49% Maori, 38% Pacific Islanders and all aged between 13-16 years.	Country: New Zealand Service: university researchers recruited adolescents alienated from mainstream education	Depression was thought to be real and that peers suffered from the condition. Main responses to depression was substance use, fighting and self-harm. Most were very reluctant to seek help from professionals. High level of interest in computer programmes to help with depression. Barriers included lack of help seeking, access and potential embarrassment.	No theoretical model used to underpin findings.

Fogel and Nehmad (2009)	Information and support: online info	Interviews with undergraduates in inter-city college	20 undergraduate students. 10 women and 10 male. Mean age 21. 95% Chinese and 5% Korean. 50% immigrants. Mean CES-D score 14.7. 60% scored below 16 and 40% of scores 16 or above. Half had previously searched for depression or depressive symptom information on the Internet.	Country: U.S. Service: academic researchers recruit undergraduate students.	**Using the Internet to obtain information about depression:** difficult talking to someone about depression, confidential, obtain specific information about understanding depression or treatments for it, convenient, information about personal emotional component, excellent source, to help oneself, free way to obtain information, educational activity, obtain professional contact, information, communicate with others with depression. **Not using the Internet to obtain information about depression:** Internet is not a good source, in denial, ashamed about depression, wants professional help, prefers live person, technology issues, these feelings	No theoretical model used to underpin findings.

					are normal, not depressed, lazy. **Useful topics to include on an Internet Website:** sharing personal information, causes and types of depression, how to help oneself, social skills building, cultural aspect of depression, Chinese language, normalising depression, treatments, religious topics, demographics, miracle cure, questions and answers, seeking help can be confidential, professionals opinion, emotional topics, thinking positively, Freud.	
Horgan et al. (2013)	Information and support: peer support.	Thematic analysis used to analyse forum posts	53 forum posts were analysed from 17 different users over 3 months.	Country: Ireland Service: researchers created website for students and	**Symptoms of depression and loneliness of college life:** used forum to talk about loneliness and symptoms of depression. **Benefits of website- sharing and identifying with others:**	No theoretical model used to underpin findings.

				analysed forum posts	sharing feelings helped in the immediate term. Good to be able to say things aloud. Not being alone, shared understanding. Compared themselves to others getting a more realistic viewpoint. Anonymity good for sharing. Quick responses and advice. **Advice giving and receiving- emotional and informational support:** participants sought and offered advice- practical information and emotional support.	
Iloabachie et al. (2011)	Web based / online interventions: online psychological therapy	Adolescent with sub-clinical depression and their parents were interviewed. Interviews were conducted by their	83 adolescents were recruited (56% female). 40 received interviews from their primary care physician and the	Country: U.S.A. Service: university research recruiting adolescents with sub-clinical	Nine themes developed representing the dominant faces of psycho-emotional cognition experienced by the adolescents over the intervention period. Themes tended to be consistent across setting and time and	A theoretical model was derived from the quantitative and qualitative analysis.

		primary care physician or the study physician,	remainder by the study physician	depression and their parents.	general sense of improvement in psycho-social function across the intervention. Parent experience typified by recognition of the challenges faced by their children in successful and effective completion of the intervention and a desire to be more involved and appreciation of the benefits to their child. Juxtaposition between desire to help and ability to do so as evidenced by their use of the intervention.	
Kurki et al. (2013)	ICT in practice	Focus groups

N=12 | 2 focus groups representing both secondary care outpatient clinics

N=5 | Country: Finland

Service: academic researchers recruited from university central hospitals- mental | **Nurses' computer and Internet use in practice**: *information transferring related use*- electronic patient record system use, Intranet use, information exchange between network; *Nurse-adolescent* | |

			N=7 Age between 34-49 years. Three male and nine female. All over 10 years working experience.	health specialised registered nurses	*interaction related use-* using the internet for information searching, educating internet use and using Internet to introduce him/herself to nurse. **Nurses' problems in daily computer and Internet use in practice:** *technology-based problems-* problems in using and working with it, time-consuming; *role-changing problems-* increasing secretary tasks, screening electronic information, replaying face-to-face meetings by email; *organisational problems-* lack of data security instructions and lack of nurses' needs-based education.	

| Lillevoll et al. (2013) | Web based / online interventions: online psychological therapy | Participants in a RCT testing MoodGYM were recruited at the end of treatment for the qualitative study. At the start of the RCT the baseline BDI-II score was a mean of 21.7. Interviews were conducted with participants using phenomenological analysis | Fourteen patients were recruited from the RCT sample. Five were men and ages ranged from 22-61 years. Three patients did not complete the programme. Pre-treatment BDI had a mean of 18.27. Post-treatment 6 patients had not changed, 1 had improved and 7 had recovered based on criteria for clinically significant change. | Country: Norway

Service: university research recruiting patients with depression | **Being in treatment:** *taking action to address one's problem-* mere act of doing something is important, significance of moving from passivity to activity. Easy access an important factor for taking action. *Value of talking to a professional-* involvement of a therapist was vital and talking to a professional is very important. Someone who you can trust, freely express yourself with and receive individual affirmation was important. **ICBT:** *acquiring relevant knowledge-* self-help material particularly relevant. For some self-help material raised awareness, reactivated once-familiar knowledge, or provided new insights whereas others the | No theoretical model used to underpin findings. |

					content was not meaningful. Not all patients related to the principles of CBT presented in MoodGYM. *Restructuring new knowledge*- An active process of interpreting material. Proposed approaches and techniques not universally suitable. *Actual changes in perceptions and Interactions*- changes in thought and behaviour were essential. Some of the changes patients made were not directly related to any of the programme material.	
Meyer (2007)	Information and support: self-help	Semi-structured interviews and focus group	13 student interviewees 10 of whom went on to create an on-going email focus group	Country: U.K. Service: researcher analysed interviews and focus group findings to create	No rich data was presented in findings section of paper.	No theoretical model used to underpin findings.

				self-help website for students		
Nicholas et al. (2010)	Web based / online interventions: usage issues	Semi-structured interviews analysed with thematic analysis	Participants recruited from an on-going RCT evaluating an online psycho-educational programme for newly diagnosed people with BD. A sample of 39 participants who did not complete the online programme were interviewed	Country: Australia Service: university researchers recruiting patients with BD	**Reasons for attrition:** difficulties associated with acute phase of BD, not wanting to think about one's illness and programme factors such as information being too general and not personally tailored were main reasons for nonadherence.	No theoretical model used to underpin findings.
Pagliari et al. (2012)	Web based / online interventions: online psychological therapy	Professional participants were chosen to represent the groups that typically provide care for patients with depression (Community mental	Ten focus groups with patients and health professionals were carried out in UK, Spain and Romania. Three focus groups of patients (one in each country)	Country: UK, Spain and Romania Service: university research recruiting patients and health professionals	No direct data. **Configurability & personalisation:** should be possible to adapt avatar to suit user preferences. **Trustworthiness:** avatar should look like the type of person they	No theoretical model used to underpin findings.

| | | health nurses, psychologists and psychiatrists). Patients presumably have depression however not explicitly mentioned. | and 7 groups of professionals (2 UK, 2 Spain and 3 Romania) | working with depression | would wish to engage with and be happy to confide in in real life. **Avatar as professional ally:** heavy emphasis by professionals and patients placed on the apparent trustworthiness of the character represented by the avatar since it would effectively be acting as a member of the team. **Functional role of the Avatar:** professionals believed the avatar should be able to display emphatic facial expression and keep a neutral face when receiving negative impact from the patient. System should be guiding rather than directive. Importance of adaptive interaction. **Avatar as sensible friend:** Patients saw avatar as a person and a 'sensible friend' to | |

					'recognise' times of difficulty. **Fear of replacing human interaction and support:** anxiety amongst patients and professionals that the system could replace human interaction and support- essential to emphasis role as adjunct to treatment.	
Parker and Orman (2012)	Web based / online interventions; online assessment tools	Informal comments from survey	Of 9276 patients only 8.2% judged it as very or quite difficult. Only 9% of professionals provided judgements regarding utility.	Country: Australia Service: researchers in a research institute recruited patients with depression and their professionals	**Patients:** easier to talk to GP as MAP had provided way to think about things. More confident in diagnosis when agreed with GP. Good to be able to do it at home where you could think clearly. *Negative:* Length of test and repetition of questions. **Professionals:** assists with diagnosis, educates client and helps them understand condition, helps bridge the	No theoretical model used to underpin findings.

					client-practitioner barrier, helpful adjunct to therapy, gives a sense of credibility to patients and validates what they have been experiencing, increases confidence of practitioner, more collaborative care. *Negative:* patient bias in self-report format, biased towards medical model, induce false sense of security, incompatible with some web browsers.	
Pohjanoksa-Mäntylä et al. (2009)	Information and support: self-help	Focus groups	Six focus groups were conducted 29 Internet users. 26 female, mean age 47, 12 retired or unemployed, 10 students, 7 full or part-time employed, 25 used the Internet for more than 1 year, 16 members	Country: Finland Service: academic researcher and health service researcher recruited Internet users with depression to	**Reasons:** obtain a second opinion, verify information within package, prepare for physician appointment and learn about peer experiences. Internet complimented rather than replaced information by professionals. **Self-reported impacts:** increased autonomy,	

			of a patient support group	analyse online drug information access.	improved knowledge, being reassured, deciding to change dose, discontinue a drug and to suggest a new drug to a physician.	
Proudfoot et al. (2010)	ICT in practice	Focus groups N= 47 and interviews N=20	6 focus groups. 4 were held in urban areas and 2 in rural towns. Of the urban groups 2 specifically targeted young people aged 18 to 28.	Country: Australia Service: academic researchers recruited community participants with or without depression, anxiety or stress.	**Current mobile phone behaviour:** *Focus groups*- all owned a mobile, 83% used daily predominantly for social reasons and 72% used for work. Only 38% accessed the Internet from mobile primarily for email, Facebook, Twitter, music, directions, games, Google and browsing. Not using due to cost, not knowing how, no need, or Internet not available on phone. *Interviews*- all owned mobile and use varied. All made calls, 90% used text messaging and minority used for checking	No theoretical model used to underpin findings.

					emails, taking photos and other functions such as clock, calculator, calendar etc. 65% did not use the Internet on the mobile- Internet access at home or work, cost too high, or mobile did not allow access. **Attitudes toward using mobile for mood monitoring:** *Focus groups-* 70% would be interested in using mobile to track mood, anxiety or health. Due to speed, convenience, ease of access, monitor and reflect on mood change, improve self-awareness, self-management, well-being and access support when doctor not available, less confronting than face-to-face consultation and helping isolated people feel connected. *People*	

| | | | | | *not interested-* not liking to use phone or technology, intrusive or privacy lacking and not seeing the benefit.

Mode of using the programme: *interviews-* 13 out of 20 interviewees reported a programme to monitor depression, anxiety or stress would definitely be helpful. In response to a question whether they would use the programme themselves if free 17 answered positively and would use at least once a day. *People not interested-* only used basic functions and did not see how monitoring mood would be useful. **Key functions and features required:** *Focus groups-* privacy was an issue of | |

					significant importance. Simple to use and fool proof. Usage should be quick and easy. SMS reminders could be useful. Feedback very important, graphical form most popular. Flexibility important. *Interviewees-* Privacy and security of information important- username and password required. SMS reminders to track moods. Useful to have doctor/professional to see data.	
Purves and Dutton (2013)	Web based / online interventions: online psychological therapy	Seven volunteers were recruited by placing an advertisement in a local newspaper and also circulated to contacts of the researcher. Participants were	Seven participants, six female and an age range of 30-57 years. A small homogenous sample in line with IPA methodology.	Country: U.K. Service: National Health Service researchers recruiting people with mild	**The meaningful relationship:** *being the nature, pattern and degree of the participant's relationship with the self-help material and its impact on the participant's psychological process.* **Shape from**	No theoretical model used to underpin findings.

		recruited with previous self-help experience, mild depression according to self-assessment against DSM IV criteria for major depression and willingness to be interviewed after intervention completion.		depression who had completed Blues Begone without additional human help or support.	**confusion:** *the use of structure to bring order, focus, shape and clarity to their psychological state.* **Stimulation:** *stimulation of senses and cognitive activity by content and presentational format of material enhanced engagement.* **Empowerment:** *increased sense of personal agency was enhanced through engagement with the content and process of self-help activity.*	
Richards and Timulak (2012)	Web based / online interventions: online psychological therapy	Completion of HAT forms	Eighty participants with symptoms of depression were randomly allocated to either 8 sessions of therapist delivered asynchronous email CBT counselling (eCBT n=37) or cCBT self-administered	Country: Ireland Service: university research recruiting students with moderate depression.	**Helpful events:** provision of information, scheduling, monitoring, restructuring, problem solving and distraction techniques leading to learning new coping skills, behavioural changes, developing awareness, insight and self-efficacy. Therapist responsiveness	No theoretical model used to underpin findings.

			treatment (CCBT n=43) for depression. From sessions 2-8 participants completed a HAT form which was analysed used descriptive interpretive analysis. eCBT had 26 women and age ranged from 19-59 years. cCBT had 25 woman and age ranged from 20-50 years.		impacts on feeling supported and validated-acknowledgment/listening, advice and guidance and provision of compassion. **Unhelpful events:** burden of work, issues with content and form of delivery, time and pace and technical problems leading to frustration, confusion, irritability, anxiety, disappointment and being self-critical.	
Sobowale et al. (2013)	Web based / online interventions: online psychological therapy	Focus group, expert panel, public health campaign with four schools in Hong King including parents, adolescents, teachers and staff and joint primary care physician-	Focus group= sixteen bilingual Chinese adolescents aged 18-21 years. Expert panel= faculty from several Hong Kong universities. Public health campaign=	Country: China Service: university researchers recruiting adolescents with depression, experts, school and	Behavioural activation, cognitive behavioural therapy and resilience models were maintained while interpersonal therapy models were excluded from the Chinese adapted intervention. Concurrent self-reports of smoking, drinking,	Behavioural vaccine model was used and significant adaptions to the model were recommended

		social worker system review.	consortium of schools, audiences included teachers and staff n=100, parents n=150 and students n=1650. Joint primary care physician and social worker review: local primary care physicians and social workers conducted a full review of the intervention.	parent perspectives to be analysed using theoretical thematic analysis.	illicit drug use and gambling behaviours were added. Social worker consultations were identified as the best point of entry for the intervention.	upon completion of the research.
Stjernswaerd and Oestman (2011)	Web based / online interventions: self-help / self-management programme	Forum post and focus group analysis	Forum posts from a 10 weeks test period were printed out and analysed with permission from their authors, including posts from dropouts. Three focus groups had five, four and four	Country: Sweden Service: university researchers recruited participants from a previous study and advertisements in local newspapers.	**Diary was found to be a place of discharge, think tank and routines. The forum was a place of discharge, sense of community, exchange and privacy**. The website is seen as a **communication tool- communication with the self**. Think tank and perspective, duty	No theoretical model used to underpin findings.

			participants respectively.	Previous participants had been recruited through a psychiatric ward, regional newspaper, support organisation and a thread in an online forum.	and reminder versus enjoyment. Place of discharge and privacy. **Communication with others**-sense of community, exchange and perspective, critical mass and activity level, empowerment and openness, anonymity, **advantages and obstacles**-computer knowhow was seen as a potential barrier.	
Stjernswärd et al. (2012)	Web based / online interventions: self-help / self-management programme	Focus groups and paper and digital prototyping	Focus group one explored motivation and hindrances to using the digital tool. Focus group two explored participants' thoughts about private vs. public aspects of the tool.	Country: Sweden Service: university researchers recruited participants through a psychiatric ward, regional newspaper,	**Motivations:** to create understanding and rehabilitate oneself and **hindrances:** lack of time or energy were identified. Design decisions were made on participant's privacy concerns, needs of support and the influence depression has on a relative's life.	No theoretical model used to underpin findings.

				support organisation and a thread in an online forum.		
Swinton et al. (2009)	ICT in practice	Focus groups Primary Care Providers N=17 and Patients N=28	Two focus groups- one with PCPs and one with patients were conducted in each of the 5 rural communities in Nebraska. Of the 17 PCPs, five were female and 12 male. Of the patients, 22 were female and 6 male. All were white.	Country: USA Service: academic researchers recruited patients and primary care professionals from 5 rural localities.	**Behavioural telehealth is a reasonable solution to the access-to-care problem:** a theme common to patients and PCPs. Telehealth brings treatment options that are unavailable to their communities. Not the first treatment choice but better than nothing- accepting with reluctance. **The therapeutic relationship is essential to treatment success:** impersonal nature of technology could negatively impact on therapeutic relationship. Neither wanted to accept substandard treatment.	No theoretical model used to underpin findings.

					Not an insurmountable barrier underscoring perceived need. Concerns- impersonal and confidentiality of technology mediated treatment. PCPs wanted best quality care and expressed concerns that treatment delivered through telecommunications may compromise care. Need was greater than concerns regarding technology with focus groups discussion solutions.	
Takahashi et al. (2009)	Information and support: peer support.	Content analysis based on grounded theory approach	37 valid respondents. Median age 37. 43% male. 91% could be diagnosed with a mood disorder. 54% had positive assessment of SNS. Frequency of accessing SNS by PC or	Country: Japan

Service: researchers analysed SNS for people with self-reported | **Advantages:** some channels (message, blog and community) or some functions (invitation / footprint / privacy control functions) ensured advantage conditions like anonymity, easiness and expectation, creating a place where people | |

			cell phone and friends of people with a positive assessment of SNS were significantly higher.	depressive symptoms	could face each other honestly and gain peer support. This helped network members: recognise existence of peers, acquire information, narrate their experience, support each other and encourage peer support. This allowed them to understand themselves more and feel positive and possibly change behaviour. **Disadvantages:** solely cyber communication with the SNS and intensified dependency by depressed people created additional psychological problems. Potentially trigger downward depressive spiral with SNS potentially exacerbating depressive symptoms like-reading negative comments, being depressed and writing	

					negative comments. They experience disappointment in SNS participation.	
Todd et al. (2013)	Web based / online interventions: self-help / self-management programme	Series of focus groups	Twelve service users with a diagnosis of BD took part on the first focus group. Participants were then split in half for focus groups 2 and 3. The average age of participants was 42 years. All except one were of white British decent.	Country: U.K. Service: university researcher recruited participants with BD from service user groups and on the Internet.	**Themes identified**: gaining an awareness of and managing mood swings, not just about managing mood swings-the importance of practical and interpersonal issues, managing living within mood swings without losing the experience, Internet is the only format-freely accessible, instant and interactive and, professional and peer support to overcome low motivation and procrastination.	
Treanor et al. (2011)	Web based / online interventions: self-help / self-	Semi-structured interviews	Twelve participants with 7 women and a mean age of 33 years for females and 49 years for	Country: UK Service: University, NHS and private sector	Mixed views: some participants were hesitant to use online services due to who could access and view information whereas	No theoretical model used to underpin findings.

	management programme		males. Seven were unemployed, all had a self-report history of mental health problems with 8 having a mood disorder and 4 reporting psychosis.	researchers recruited participants with self-disclosed mood disorder	others felt very open about sharing information online. Helped participants recognise patterns in their behaviour. Intervention became incorporated into participants daily routine	
Vayreda and Antaki (2009)	Information and support: peer support.	Conversational analysis	14 forum posts	Country: Spain Service: researchers analysed forum posts on a website designed for Spanish speakers with BD.	An intimate relationship between turns in sequence-giving unsolicited advice although a 'mismatch' is a consequence of the open design of a new user's initial posting. Unsolicited advice might function at the ideological level to induct new users into the group providing support and meaning to BD.	No theoretical model used to underpin findings.
Watkins et al. (2011)	Web based / online	Focus group	Focus group contained four men and four	Country: U.S.A.	Patients had a positive reaction to the idea of an email reminder.	No theoretical model used to

	interventions: self-help / self-management programme		women who all self-identified as white. Income ranged from below $15,000 to over $80,000 and most participants reported being familiar with computers and used them frequently.	Service: university researchers recruited patients with depression from a university-affiliated depression centre.	A good way to remind them of treatment goals and manage their symptoms. Most helpful for problems that arose between appointments with clinician. Having face-to-face time with clinician was important and should not be reduced. Would help against feelings of isolation. E-minders should not be lengthy, the option of being able to initiate contact with clinician and customised for each patient.	underpin findings.
Whitehill et al. (2013)	Information and support: peer support.	Open-coding process	60 participants. 60% female. One third had displayed reference to depression on their Facebook profile	Country: U.S.A Service: researchers analysed structured interviews with college freshman	Low proportion of depression displayers (30%) wanted a stranger to approach them due to unknown individuals monitoring their Facebook activity. Someone with no offline relationship might not be able to judge risk of depression from	No theoretical model used to underpin findings.

					content of Facebook. Acceptance by staff and strangers might make students feel more comfortable by giving time to think about how to respond. People encouraged to approach in a straightforward manner regarding issue and to be caring and compassionate- to take an inquisitive and supportive approach.	
Wilhelmsen et al. (2013)	Web based / online interventions: online psychological therapy	Phenomenological hermeneutical approach using semi-structured interviews	Participants were from an intervention group of a RCT using a Norwegian translation of MoodGYM. Fourteen participants, 9 female with age ranges from 22-61 years. Participants had mild-	Country: Norway Service: university researchers recruited patients seeking help from their GP for mild to moderate symptoms of depression who	Intrinsic motivators were the hope of recovery and a desire to regain control in one's life. An important supporting condition was the ability to freely choose how, when and where to complete the intervention and satisfied the need for autonomy. A sense of belonging towards family, partner and friends was	No theoretical model used to underpin findings.

				moderate depressive symptoms.	had taken part in a RCT of MoodGYM.	an essential motivating factor along with the ability to identify with the intervention. The experience of connectedness when met with flexibility, acknowledgment and feedback from a qualified therapist during face-to-face meetings was another supporting condition.	

Table 7: Appraisal of qualitative papers in meta-synthesis

Qualitative studies		*n* (%)
Global assessment of study quality		
	Weak	12 (35)
	Strong	22 (65)
Typology of findings		
	No findings	4 (12)
	Topical survey	11 (32)
	Thematic survey	14 (41)
	Conceptual thematic description	5 (15)
	Interpretive explanation	0 (0)
Total		**34 (100)**

Richness of data

It was important to analyse the studies in terms of their richness of data if inferences of quality were to be made towards the analytical framework created from the meta-synthesis. Although the need for generating rich data in qualitative research was commonly expressed as an important requirement, very little in terms of an empirical evidence base exists in order to achieve this (Ogden, Ogden and Cornwell, 2010). Richness was operationalised using a study by Ogden, Ogden and Cornwell (2010), using their five dimensions of richness; length, descriptive, personal, analytical, and action, to analyse the 34 papers. The following section has been categorised into general topics covered by the papers and their transparency and communication of data discussed (Table 8).

Table 8: Topics of included studies

Theme
ICT in practice
Information and support: online information
Information and support: peer support
Information and support: self-help
Web based/online interventions: online assessment tools
Web based/online interventions: online psychological therapy
Web based/online interventions: psychoeducation
Web based/online interventions: self-help/self-management programme
Web based/online interventions: usage issues
Web based/online interventions: views and perceptions

ICT in practice

Kurki et al. (2013) conducted a mixed-methods exploratory study looking at the integration of computer- and Internet-based programmes into the psychiatric outpatient care of adolescents with depression. Focus groups were used to collect the data, which were analysed using inductive content analysis. The qualitative methods used were clearly described and indicated a good level of transparency in communicating their design and procedural aspects of the study. Data were transformed into analytical themes with some participant quotes used as evidence to strengthen assertions. The results indicated that using ICTs is very much part of daily nursing practice for the transmission of data and for interacting informally with their patients. Nurses appeared to have good computer skills, a positive attitude to using ICTs, and were motivated to incorporate them into their working practice. Examples of problems that they faced included lack of training, education and support for using ICTs.

A mixed-methods study exploring community attitudes to the use of mobile phones for monitoring and managing depression, anxiety and stress was conducted by Proudfoot et al. (2010). The target population was adults aged over 18 with or without depression.

Six focus groups involving 47 participants were undertaken with a further 20 people involved in interviews. Thematic analysis was used to analyse the qualitative data. The results of both the quantitative and qualitative study were presented together under the same headings or themes. Presenting the results in this way appeared to limit the capacity of the paper to link raw data to the themes generated. Attitudes towards using mobile phones appeared to be positive, as long as privacy and security were assured.

Swinton, Robinson and Bischoff (2009) carried out a qualitative study examining primary care physician and patient perspectives on using telehealth as a way of making mental health treatments more accessible. Focus groups were used to collect the data, which was analysed using a multiple-case study approach. The specific method used to analyse the data was not mentioned, that is to say, whether it was thematic analysis or framework analysis, however, procedural aspects describing how they went about analysis were discussed, that is to say, coding and theme generation. There was a degree of data transformation that was backed up by participant quotes. There was concern regarding the maintaining of the therapeutic relationship over distances, however, technology was seen as a potential solution to access issues. A collaborative relationship with frequent communication was seen as being a key factor.

Information and support: online information

Fogel and Nehmad (2009) explored Asian American use of the Internet as a health information resource. Twenty undergraduate university students took part in the mixed method study. Semi-structured in-depth interviews were used for the qualitative component, and these data were analysed using thematic analysis. There appeared to be data transformation, as discussed in their methods section, however, this was not always supported by sufficient evidence in the results section. There was a good level of transparency in terms of their methodological approach and how they approached potential issues with bias and rigour, that is to say, their co-screening process. The study found that the anonymity of the Internet was useful for facilitating users to find information about depression if they were experiencing feelings of shame and stigma. Additional reasons for using the Internet included convenience, difficulty talking face-to-face, and that it was a useful source of information. Reasons for not using the Internet included issues regarding quality of information and possible awareness (denial) of having depression. The outcome of the study identified that the Internet website could be tailored to the specific population it was intended to serve.

Information and support: peer support

Clarke and Sargent (2010) used discourse analysis to analyse the message boards of an online messaging service for parents with depressed children. The analysis identified the common themes within the discussions of the parents and they found that the online site provided a forum for them to talk about the issues they faced. Parents used the site to discuss the condition, seeing it as a real phenomenon characterised by behaviours, moods, appearance, sociability, school issues, and how they coped as parents. Causal factors included biological and social stressors and the predominant method of addressing the issues was perceived from a medical perspective. Whilst it was descriptive in terms of the results, some transformation had also taken place.

Horgan, McCarthy and Sweeney (2013) conducted a mixed-methods study to develop and test an online peer support intervention for students experiencing depressive symptoms. Fifty-three forum posts from 17 different users were analysed using thematic analysis. There was a good level of data transformation that appeared to be well backed by participant quotes. Thematic themes covered the students' experiences and the benefits that a peer support website provided. Certain methodological issues were not mentioned, for example, whether any factors for safeguarding bias were utilised in the study. Loneliness and poor social skills appeared to be the main issues, however, the site also offered a place to share, offer and receive informational and emotional support.

Takahashi et al. (2009) conducted a mixed-methods study examining the potential benefits and harms of a peer support social network for people with depression. An Internet survey was used which also contained open-ended questions that provided the data for the qualitative component of the study. Content analysis was used to analyse the data and these were organised into codes, concepts and categories, and a storyline based on the grounded theory approach. There was transparency in terms of the methods used, and also evidence of data transformation into higher-order themes, however, these were not backed up by raw data. Results indicated that user-selectable peer support could be passive, active, and/or interactive, based on the ease of use and anonymity of the site. A potential for harm in a depressive downward spiral triggered by aggravated psychological burden was also revealed.

In a qualitative study, Vayreda and Antaki (2009) examined social support and the giving of unsolicited advice in an online forum for bi-polar depression. Fourteen initial postings on the forum were used as data and were analysed using conversational analysis. There

was transparency evident in discussing the methods they used and, although descriptive at times, there was some evidence of data transformation strengthened by raw data. Giving unsolicited advice appears to be a result of the design features of an online forum site and might be used as a way of inducting new users into the online group.

Whitehill, Brockman and Moreno (2013) conducted a mixed-methods study to investigate the preferred method of communication and intervention by friends, professors, and strangers in response to disclosing issues about depression on Facebook. Structured interviews were used to generate the qualitative data, which was analysed using a spreadsheet. There was transparency in the quantitative aspects of the research, however, this was not as clearly evident when the authors explained the qualitative elements. There was a degree of transformation in the open-coding process, however, the data remained at a fairly descriptive level but were strengthened by the use of raw data. In-person communication by friends or a trusted adult is the preferred means of raising concern regarding postings about depression on Facebook.

Information and support: self-help

Meyer (2007) carried out an intervention design to develop a student website for depression. It was a social constructionist action research project whereby 13 students were initially interviewed using semi-structured interviews before ten of them went on to form an email focus group. An evaluative action research spiral was used to analyse the data. In terms of results, it was descriptive in nature with no evidence of raw data, nor were themes discussed. There was no level of transformation, nor were any data used for the synthesis.

In a qualitative study, Pohjanoksa-Mäntylä et al. (2009) assessed how and why people use and access online drug information. Six focus groups were used with a cross-section of 29 people with depression. The data were analysed thematically using a constant comparative method. The methods were clearly described and a good level of data transformation was reached, which was well supported by raw data. Patients described increased autonomy, improved knowledge and a sense of reassurance resulting from online information access. They also made decisions relating to the discontinuation of medication or a change of dosage. The Internet was used to complement rather than replace face-to-face contact with a health professional. The Internet was also found to be used as a resource for the content it offered regarding drug information.

Web-based/online interventions

Online assessment tools

Parker and Orman (2012) studied qualitatively the online version of a mood assessment programme. The data were gathered using a questionnaire with the option to include personal written comments at the end. The comments of both patients and professionals were displayed in the paper, but no data transformation occurred. No qualitative methodology was discussed or used to analyse the data.

Online psychological therapy

Bendelin et al. (2011) used a combination of thematic analysis and grounded theory to analyse data and form four core themes. These themes were divided into how people worked with the intervention material, their motivational factors, opinions of treatment, and the skills acquired by interacting with the intervention. Data appeared to be well transformed and linked to existing theoretical models to explain the results.

Cheek et al. (2014) used thematic analysis to analyse focus groups of young people in rural localities. In terms of typology, there was a good level of data transformation, creating three main themes. 'Personalisation' was identified as an important theme, as was the capability for users to feel that they had a choice in regards to privacy and changing settings in the programme to suit themselves, for example, the gender of the avatar. 'Engagement' identified that people fell into the category of users or non-users. Users tended to have access and use computers and saw them as a good way to deliver health care with some specifically using them when they felt down. However, there were certain users who clearly identified themselves as non-users and did not see any benefits to using computers. The theme 'Stigma' raised issues regarding how people sought help and the possible barriers to treatment, and how ICTs might possibly reduce the risks of being stigmatised.

Danaher et al. (2012) used focus groups to generate data on the development of a web-based intervention for postpartum depression. Data were analysed using an open-coding system based on the central components of the proposed intervention, themes that had arisen during focus group discussions, and analytical themes developed during coding. Themes were presented figuratively and were not discussed in-depth within the text, but rather, were mentioned at a summary level. Methodological aspects, such as the approach used to analyse data, were not entirely clear. Themes relating to engagement with users were prominent, as well as those relating to supporting family members and carers.

Iloabachie et al. (2011) used a mixed-methods study to develop and test an online intervention for adolescents with depression. A grounded-theory-based approach was used to analyse interview comments and typed programme responses. Data transformation had occurred but was not comprehensively explained in the results section. There was a small amount of data relevant to the research questions outlined in this synthesis. The researchers were transparent when explaining the factors used to minimise bias and the research appeared to be thorough. Results of importance to the synthesis were themes relating to how the online intervention supported people to change and its usefulness in helping to control depression.

In a qualitative study, Lillevoll et al. (2013) explored patients' experiences of using a guided self-help Internet intervention for depression. A phenomenological-hermeneutical approach was taken, and 14 participants were interviewed using semi-structured interviews. There was transparency in setting out their methodological approach and the methods used, which also appeared to complement the purpose of their study. The results section appeared to be detailed with the analytical themes being well supported by raw data, resulting in good data transformation. The themes relating to treatment identified the importance of taking action to address one's problems and talking to a professional. Themes related to the intervention identified the importance of receiving new knowledge and being able to restructure it into something more tailored and usable. The last theme related to how people's perceptions and interactions changed through the process of using the intervention.

Pagliari et al. (2012) developed an online intervention designed to support people with depression using avatars. Ten focus groups were completed with both patients and health professionals in order to explore usability and contextual fit issues. Data were analysed thematically. The methods were not discussed in depth, however, a basic understanding was obtained regarding procedural aspects. Data transformation appeared to have taken place with analytical themes being created; however, the results were discursive in nature with no raw data being used to back up the findings. The findings included the need for personalisation and tailoring of the intervention, its use as an adjunct to treatment, and the avatar to be seen as a supportive ally.

Purves and Dutton (2013) completed a qualitative study exploring the therapeutic process for people using computerised cognitive behavioural therapy. Seven people were recruited with mild depression and data were collected using in-depth interviews.

Interpretive phenomenological analysis was used to analyse the data. Transparency was evident in the explication of the selected methods and reflective strategies used. There also appeared to be a good level of data transformation that was supported by raw data. The findings indicated some ways that people make use of cCBT through four super-ordinate themes; shape from confusion, the meaningful relationship, empowerment, and stimulation.

Richards and Timulak (2012) conducted a qualitative study comparing helpful and hindering events in therapist-delivered versus self-administered cCBT. Descriptive interpretative analysis was used on the text generated by 80 participants, who completed a Helpful Aspects of Therapy form. The results were descriptive with little evidence of data transformation.

In a qualitative study, Sobowale et al. (2013) evaluated an adapted Internet intervention for Chinese adolescents. Qualitative data were collected through focus groups, an expert panel, a public health campaign, and a review group, and these were analysed using a theoretical thematic analysis approach. The theoretical framework of behavioural vaccines was used to code the data and was consolidated to provide a narrative analysis. The results were presented thematically with no raw participant data provided. There was transparency in regards to the methods used, however, the amount of data transformation was difficult to gauge due to lack of evidence. The effective components of a Chinese version of the cCBT intervention were identified.

Wilhelmsen et al. (2013) carried out a qualitative study exploring the motivating factors in persisting with cCBT using blended care. Semi-structured interviews were used to generate the data, which was analysed using a phenomenological hermeneutical approach. There was good transparency in methods and rationale and a good level of data transformation, supported by raw data. Participants would persist with the intervention if their needs for relatedness were satisfied. This was achieved by gaining a sense of belonging from those who were important in their lives. Feeling connected to their therapist was also a motivating factor. Attending to the feelings of relatedness and belonging were seen as opportunities to increase persistence in their use of cCBT.

Barnes et al. (2011) developed an intervention design. The study displayed a good level of qualitative results and transformation of data into higher-order themes. There were some findings relating to user-centred design principles in terms of users feeling

uncomfortable in viewing actors. It was revealed that the programme also included a service for carers and family.

Self-help/self-management programme

Bae et al. (2009) created a user-centred, web-based health information service for people with depressive symptoms. The results were limited and data were found in the form of a table generated from qualitative interviews.

Bradley, Robinson and Brannen (2012) conducted a qualitative study that explored what users wanted from an Internet-based self-help programme for depression and anxiety using inductive thematic analysis to analyse data from thirteen telephone interviews, providing a good level of data transformation into three main themes with sub-themes. The usefulness of the intervention was captured in the theme 'effectiveness', and the importance of credibility when choosing to use the programme was highlighted. The idea of having a safe and private space in which to seek information on material that others might deem sensitive and which might affect relationships with others was important and created the theme 'Privacy allows control over disclosure'. Convenience and accessibility were important factors, along with being aware of the programme's existence and having the motivation to want to engage, and these themes were captured in the 'Capacity to seek help' theme.

Drake, Csipke and Wykes (2013) used a mixed-method outcome study of an online mood-tracking and feedback tool. Focus groups were used for the qualitative component of the study and these were analysed using thematic analysis. Whilst the methods were clearly described, the results were made less obvious in the text and were mixed with the quantitative results, making it difficult to follow the levels of data transformation. Focus groups found the tool to be acceptable, but its description required further clarification for its use.

Stjernswaerd and Oestman (2011) used a mixed-method study to illuminate users' experiences of a website for the relatives of people with depression. Data were collected through focus groups, forum posts and a usability scale and were analysed using content analysis. There was transparency in terms of the methods used, and a good level of data transformation was evident. Illustrative quotes were used as examples to demonstrate how themes were generated. The function of a diary and online forum was found to promote communication with self and others.

In an iterative design study, Stjernswärd, Östman and Löwgren (2012) used qualitative approaches to design an online self-help website. The data generated from two focus groups was analysed using content analysis. Data transformation had appeared to occur, however, there were no raw data used to strengthen any assertions made. There was an explanation of the methods used and how they fitted into the iterative design process. Motivations and hindrances to using such an online tool were identified, and design preferences were identified from the end-users.

Todd, Jones and Lobban (2013) conducted a qualitative study examining what service users want from an online self-management intervention. Focus groups were used to generate data that were analysed using thematic analysis. There was a good level of transparency in terms of the methodological rationale and the methods chosen to conduct the study. There was a good level of data transformation with higher-order themes discussed and backed up by participant data. Service users wanted to gain an awareness of and to understand: how to manage mood swings; the practical and interpersonal issues; how to manage living within mood swings; seeing the Internet as the only format; and the importance of professional and peer support in overcoming procrastination.

Treanor et al. (2011) used a mixed-method study to examine the use of an online mood-monitoring intervention. Semi-structured interviews were conducted, however, it is unclear whether the data were analysed to any depth; instead, it appears to have remained at a fairly descriptive level.

Watkins et al. (2011) conducted a qualitative needs assessment of patients with depression regarding their interests and preferences for using an email reminder service as a self-management tool. Eight participants were selected for one focus group and data were generated using a semi-structured focus group protocol to guide the conversation. There was transparency in the methods used and in the recruitment processes. The data were analysed using spreadsheets through transcript-based analysis, tape-based analysis, note-based analysis and memory-based analysis. Content analysis was also used to determine the frequency of codes. There was a basic level of data transformation divided into two themes, however, this remained at a fairly descriptive level without the use of raw data as examples. Patients appeared to be interested in using email reminders, however, the results indicated that they should not be used to replace treatment and instead should be used only as an adjunct.

Usage issues

Donkin and Glozier (2012) used a grounded theory approach to answer what influences persistence with online interventions. Semi-structured interviews were stopped after 12 participants as theory saturation had been achieved. A good level of data transformation appeared to be achieved, with analytical themes created and explained using participant quotes. Substantial barriers were identified, including competing priorities, time constraints, anxieties related to spending too much time on the computer, and thoughts regarding the limited worth of the intervention. Those who persisted had intrinsic motivations, such as personal values regarding personal control and task completion, whilst also recognising external motivators that assisted the development of personal habits.

Nicholas et al. (2010) conducted a qualitative study forming part of a larger RCT evaluating an online psycho-educational programme for people newly diagnosed with bipolar disorder. The qualitative study was interested in exploring reasons for attrition and non-adherence. Thirty-nine people from the larger RCT were interviewed using semi-structured in-depth interviews and the data were analysed using thematic analysis. The paper reported on findings from the quantitative and qualitative study and therefore did not go into depth regarding the methodological aspects of conducting the qualitative study. However, data transformation appeared to have occurred, with analytical themes created and supported by presenting a good level of raw data. Reasons for attrition included difficulties in using the intervention when in an acute phase of the disorder, not wanting to think about their condition, and a lack of personalised tailoring of the programme.

Views and perceptions

Fleming, Dixon and Merry (2012) studied young people alienated from mainstream education, recruiting them to discuss their views on depression, help-seeking and computerised therapy through focus groups. A general inductive approach was used to analyse the data, but no specific methodology was mentioned. Some degree of data transformation had occurred with higher-order themes developed and discussed using data from the focus groups. The young people clearly believed depression to exist, however, they found it difficult to seek help due to stigma and the perception of their peers and had identified maladaptive coping mechanisms, such as substance misuse, having sex, and violence. The use of computers was seen to be a possible option for support as there was apprehension in relation to accessing professional help. The

participants already enjoyed using computers and playing video games, so were familiar with the technology. Barriers to the use of computers were identified and were both intrinsic and extrinsic, including lack of access, stigma, embarrassment, and lack of help-seeking behaviours. However, on the whole, there was positive interest in using this form of technology as an option for support.

Summary of richness

The 34 studies varied in their richness of data from some presenting no data to others presenting rich data, and evidence of this is provided by strong data transformation and thick description of their results. This may likely be due in some respect to the heterogeneity of the studies, which included qualitative and mixed methods and, therefore, when presenting the results, their richness, at times, appeared to be sacrificed in order to present other findings. Over a third of the studies were assessed to be weak in quality, therefore, the appraised strength of the studies was weighed upon, in a measured manner, the interpretation of the study findings.

Synthesis of research data

As previously mentioned in the 'Design of the review' section in the Introduction to Chapter 2, in order to keep the synthesis as close to the data as possible, the research questions were initially set to one side, facilitating an inductive process and creating an analytical framework that was formed of the data. This process was repeated for all the codes until higher-order categories were constructed and all codes were accounted for. The data created 523 free codes that were organised in hierarchical order under twenty-two descriptive themes. The final synthesis stage created four analytical themes: movement and change; providing a source of community; the person and technology; and care and the health professional (Table 9). The individual codes and supporting text were shared by the primary researcher with the reviewing team (SMac, LMc & TK) to aid in familiarising them with the data before discussing the results to verify the consistency of interpretation and to reach consensus on any disagreements.

Table 9: Typology of findings

Movement and change

- Change processes
- Engagement
- Motivational aspects of use
- Recovery
- Taking action
- Values

Providing a source of community

- Communication
- Intrapersonal effects
- Safe places
- Sharing
- Social aspects

The person and technology

- Acceptance of technology
- Design features
- Functionality
- Personal time
- Safety
- Technical mastery
- Technical issues
- Usability

Care and the health professional

- Access
- Clinical aspects
- Solutions

The six review questions were brought to the fore and used to focus the data, providing a framework with which to guide the analytical process, scrutinising the typology of findings to understand how the descriptive themes interrelated with their analytical themes, thus helping to answer the research questions. The review questions were colour-coded and all nodes within the synthesis were reviewed again, with those relating to

specific review questions being similarly coloured. Concurrently, the frequency of coding was analysed. This informed the strength of particular codes in terms of the number of times they had been referenced within a paper, or papers, facilitating the synthesis process. Themes that were of no relevance were not colour-coded, and those that were, but that had a lesser coding frequency, were subsumed by richer themes. The categorisation process was checked by the reviewing team and, through discussion, changes and adaptions were made where necessary until consensus was reached and no further changes were required.

Thirty-two descriptive themes emerged from the data through the use of the research questions as a template: motivational; convenience; help with stigma; facilitative; provides choice; credibility; cost effective; social support; online social networks; sharing through ICTs; awareness; help-seeking; taking responsibility; acquiring relevant knowledge; support; time management techniques; managing depressive symptoms; usability; functionality; engagement; a resource; communication; values; privacy; confidentiality; non-users; usage difficulties; user-centred design; trust; ICT and the professional relationship; professional perspectives; and professional challenges.

Answering the research questions through synthesis

The synthesis will now be considered in relation to the research questions. Six analytical themes were created from the final stage of synthesis, answering what the review questions had asked of the data, which were: reasons for using technology; the embedded nature of technology; the benefits and challenges of using technology; using technology to look after oneself (self-care and self-management); technology, relationships and society; and healthcare providers' experiences of technology.

Why do people with mood disorders use ICTs?

The individual's relationship with ICTs began by exploring the reasons behind their adoption and continued use of technology.

Reasons for using technology
The analytical theme contained the sub-categories: motivational; helped with stigma; facilitative; privacy; provides choice; credibility; cost-effective; and user-centred design.

Motivational
Reduced motivation is often one of the symptoms of mood disorder and a barrier to self-management (Todd, Jones and Lobban, 2013), and motivating clients to use ICTs as an

intervention and resource was sometimes a necessary component of treatment (Sobowale et al., 2013). Therefore, it was necessary for attention to be placed on the motivational aspects and barriers affecting people's use of technology during the design of the ICTs (Stjernswärd, Östman and Löwgren, 2012; Wilhelmsen et al., 2013). Having an interest and preference for using computers or playing computer games was helpful in terms of being familiar with the technology (Fleming, Dixon and Merry, 2012). Also, having a desire to manage one's own life and the hope of regaining a social life were intrinsic motivational factors related to continued ICT use (Wilhelmsen et al., 2013). Having a positive attitude towards using the Internet and computers appeared to be associated with having the motivation to use them on a daily basis (Kurki et al., 2013). Additionally, adopting a daily pattern of use instead of a haphazard approach appeared to support motivation, which was likened to going to the gym (Drake, Csipke and Wykes, 2013). Once they were using the technology, participants described ICTs as a promising tool to support people to look after themselves better (Proudfoot et al., 2010). Allowing important others, such as family members, to play a role in the treatment process when using ICTs promoted a sense of belonging and created a motivational factor for moving forward in treatment (Wilhelmsen et al., 2013). Taking action and using ICTs provided a sense of motivation in the treatment process, affecting how people felt and helping them move meaningfully towards recovery (Lillevoll et al., 2013).

Facilitative

Receiving online treatment was seen as exciting, new and a better form of care due to its helpfulness and usefulness compared to more traditional approaches (Bendelin et al., 2011). It was considered beneficial to have the option of using a computer and being able to obtain information from the Internet (Fleming, Dixon and Merry, 2012; Fogel and Nehmad, 2009). For patients who did not receive all of the information they needed, or who did not understand what they were told by clinicians, they were able to use the Internet to find out what they needed themselves (Pohjanoksa-Mäntylä et al., 2009). Using online assessment tools facilitated a dialogue between patient and clinician, making it easier for the patient to talk to their doctor as they had prepared beforehand and felt more confident in receiving a diagnosis (Parker and Orman, 2012).

Privacy

Of significant importance to using ICTs was the concept of privacy (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011; Stjernswärd, Östman and Löwgren, 2012; Takahashi et al., 2009). Motivations for privacy included confidentiality and anonymity

concerns (Stjernswärd, Östman and Löwgren, 2012). Having a private space, such as an online diary, where feelings could be freely expressed without worrying about anyone reading what had been written, was valued (Stjernswaerd and Oestman, 2011). In fact, it was the knowledge that the online diary was private which gave it its usefulness:

> *The diary was useful to freely ventilate feelings, including negative ones, in a private place without worrying about anyone reading or judging the writings. Participants could write unreservedly without worrying about exaggerating since the diary was a safe, private outlet.* (Stjernswaerd and Oestman, 2011, p. 380).

Online programmes were considered by some to provide the most private ways to seek help for psychological issues (Bradley, Robinson and Brannen, 2012). Security was a factor associated with the theme 'privacy', as users of ICTs indicated the importance of having control over privacy settings, such as using secure log-ins with mandatory usernames and passwords to enter sites (Proudfoot et al., 2010; Takahashi et al., 2009). Location was also a factor in the privacy theme, as some people found being able to use ICTs and access the Internet at home to be the best way to obtain privacy (Bradley, Robinson and Brannen, 2012).

Provides choice

ICTs provided people with options regarding how they used technology, allowing them a choice over factors relating to time, location, treatment, privacy and disclosure (Cheek et al., 2014; Drake, Csipke and Wykes, 2013; Fleming, Dixon and Merry, 2012; Fogel and Nehmad, 2009; Pohjanoksa-Mäntylä et al., 2009). People were able to use the Internet to inform themselves before having discussions with their clinicians about treatment options (Pohjanoksa-Mäntylä et al., 2009). ICTs provided the option to go online and speak to people with similar issues and seek advice (Fogel and Nehmad, 2009), or to speak to someone they already knew (Fleming, Dixon and Merry, 2012). Having the option to use ICTs in private, with one individual, or as part of a group, was helpful in conjunction with being able to access the Internet at the time and place of one's choosing (Cheek et al., 2014; Drake, Csipke and Wykes, 2013).

Credibility

The credibility of ICTs appeared to be an important factor when deciding upon usage (Bradley, Robinson and Brannen, 2012). Having testimonials from other users displayed on web pages regarding credibility, and the knowledge that the ICT was designed on research, raised confidence in technology (Bradley, Robinson and Brannen, 2012; Purves

and Dutton, 2013). Once they were considered credible, websites could potentially become a complementary source of information to people along with their health providers (Pohjanoksa-Mäntylä et al., 2009). Also, using ICTs to assess mood provided some people with a sense of credibility regarding their own feelings because the assessment validated what they had been experiencing (Parker and Orman, 2012). If a website was considered to be useful, then users of varying computer literacy, even those who were less experienced, would still use a site, indicating its acceptability (Stjernswaerd and Oestman, 2011). It was noted, however, that having a professional to support ICT use at the beginning, if needed, would be helpful and might possibly support the formation of a therapeutic relationship (Swinton, Robinson and Bischoff, 2009).

Usability assessments

How technology was designed was an important factor for people's engagement with ICTs (Stjernswärd, Östman and Löwgren, 2012). Having ICTs that were user-friendly was necessary, otherwise, if technology was too difficult to use, then feelings of stress, and a sense of failure, might arise and become counterproductive (Proudfoot et al., 2010). Discussing intervention design with the end user provided feedback that influenced changes to intervention features, such as shortening the length of modules, being able to return to resource material after finishing, and being able to download reference material which facilitated the user to engage with the material in a way that suited them (Barnes et al., 2011). Having the ability to choose options was important in terms of personalising online interventions (Cheek et al., 2014). The choice of using ICTs that allowed people to search online for whatever they wanted or needed were desirable options to have (Drake, Csipke and Wykes, 2013; Fogel and Nehmad, 2009). For some, however, depending on the seriousness of the issue, using the Internet to access information was insufficient and they preferred the option of being able to see a health professional (Fogel and Nehmad, 2009). ICTs that were complementary to the user in terms of accessibility and mobility were determinants for their use (Pohjanoksa-Mäntylä et al., 2009; Proudfoot et al., 2010). Having flexibility in terms of information choice, that is to say, how much, and over what time period to feedback information, and the flexibility to skip intervention material, were seen as important user-centred design features (Proudfoot et al., 2010; Wilhelmsen et al., 2013). Online interventions that were flexible towards access and intervention completion helped people overcome time-related barriers, allowing them to complete programmes (Donkin and Glozier, 2012; Wilhelmsen et al., 2013). Although aware of potential disadvantages, people felt that having access to, and the use of, ICTs

was a preferable option due to what they potentially offered, including ease of disclosure (Fleming, Dixon and Merry, 2012; Proudfoot et al., 2010). People did not necessarily use ICTs uncritically, instead, some restructured the content of online interventions to meet their own needs (Barnes et al., 2011, Lillevoll et al., 2013), while others felt specific aspects of the interventions, such as email reminders, should be tailored to the specific recipient (Watkins et al., 2011). Modifying aspects of ICTs to make them more user-friendly facilitated their use by reducing technical challenges and helped people to feel that they were more competent and autonomous users (Watkins et al., 2011; Wilhelmsen et al., 2013).

What are ICTs being used for by people with mood disorders?

The specific usages of ICTs are explored next focusing upon how they have become embedded within the lives of users.

Embedded nature of technology

The analytical theme had six sub-categories: resource, values, communication, engagement, functionality, and usability.

As a resource

The use and view of ICTs as a resource appeared to be an important factor in people's lives. Seen as a tool to use in a variety of ways, the un-intrusive nature of the technology was described as being handy, and also the ability for it to be location-independent, that is to say, carried on one's person (mobile phone), was desirable (Proudfoot et al., 2010). Material from online websites could be used and adapted to form person-specific frameworks to explore problems and identify solutions; people were using and tailoring information for their own benefit (Purves and Dutton, 2013). As a communication tool, ICTs could be used as a personal diary, a place to freely express feelings without fear of being judged (Stjernswaerd and Oestman, 2011), or a place where commonality of experiences would often transform strangers into what felt like family members where confidences could be made (Stjernswaerd and Oestman, 2011). For some, the resource had the potential to fill a social gap and a gap in treatment options (Richards and Timulak, 2012; Stjernswaerd and Oestman, 2011; Swinton, Robinson and Bischoff, 2009).

ICTs opened up access to information, support and treatment in a freely accessible, interactive and instant way (Fogel and Nehmad, 2009; Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011; Todd, Jones and Lobban, 2013). As a health delivery tool for low mood, for young people, using computers to engage in material appeared

second-nature (Cheek et al., 2014). Information on health-related matters was essentially at people's fingertips when using the Internet (Fogel and Nehmad, 2009). Ease of access facilitated people to take action in regards to their health instead of remaining passive on long waiting lists (Lillevoll et al., 2013). Patients would use the information accessed from the Internet to prepare for appointments with their doctors, facilitating open discussions regarding treatment options, and enabled them to ask questions and suggest alternative treatments (Pohjanoksa-Mäntylä et al., 2009). The Internet was considered empowering through its ability to access drug information, becoming the first source of additional information after receiving input from a health professional (Pohjanoksa-Mäntylä et al., 2009). ICTs provided a means of access, which was convenient and easy, independent of time and place, with twenty-four-hour availability (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011). Mobile phones were viewed as discreet, portable and convenient devices, where isolated people with mental health issues could find help (Proudfoot et al., 2010). As an access-to-care solution, ICTs opened up treatment options previously unavailable to communities and people with mobility issues (for example, older people) (Swinton, Robinson and Bischoff, 2009). ICTS were a desirable, freely accessible format, cutting waiting times for interventions and empowering people to self-manage (Purves and Dutton, 2013; Todd, Jones and Lobban, 2013).

When using online websites for specific treatments, some people found it helpful to re-access programme information if they were feeling depressed (Nicholas et al., 2010). Information was able to be assessed for personal relevance and impact, before being used, to the benefit of the person (Purves and Dutton, 2013). ICTs provided opportunities for people to share personal experiences, talk about their problems and find others who had gone through similar experiences (Fogel and Nehmad, 2009). For people who were not used to sharing their feelings, online sites and the anonymity they offered, facilitated disclosure (Horgan, McCarthy and Sweeney, 2013), with some finding it easier to talk to a computer than have a face-to-face interaction (Fleming, Dixon and Merry, 2012).

Being able to share personal experiences helped people feel less alone and gain a sense of shared understanding into one another's difficulties (Horgan, McCarthy and Sweeney, 2013). This formed a sense of community, where practical tips and experiences could be compared and exchanged (Pohjanoksa-Mäntylä et al., 2009; Stjernswaerd and Oestman, 2011). People would see themselves in others, reducing feelings of loneliness, thereby giving comfort, strength and hope (Stjernswaerd and Oestman, 2011). ICTs provided a

resource for learning (Barnes et al., 2011; Purves and Dutton, 2013; Wilhelmsen et al., 2013). For example, online discussion forums could be used as a space to discuss health information to enhance learning (Barnes et al., 2011). Online self-help material acted as stimuli for new learning and for keeping the results fresh in people's minds (Purves and Dutton, 2013). Internet cognitive behavioural therapy appeared to start a learning process, providing hope that it was possible to learn more and recover (Wilhelmsen et al., 2013).

Values affect use

Holding certain values appeared to suggest people were going to commit to using and completing ICTs more than others. Having a sense of what one should, or shouldn't, do, directed people to complete online programmes regardless of how tedious or frustrating they were (Donkin and Glozier, 2012). Having these values meant that stopping or dropping out of programmes was unthinkable and personal attributes, such as curiosity and determination, supported people to find ways to help themselves reach their goals (Fogel and Nehmad, 2009). A sense of accomplishment was achieved on the completion of online programmes, placing a value on overcoming difficulties and hard work (Donkin and Glozier, 2012). Although having a feeling of obligation to use online programmes often motivated people to complete them, when this feeling of obligation to others was removed, this would often lead to more sporadic use (Donkin and Glozier, 2012).

Communication aide

ICTs were a resource for people to communicate and exchange information and stories with others (Stjernswärd, Östman and Löwgren, 2012). For example, when people were unable to leave their homes due to symptoms caused by their mood disorders, ICTs provided a means to contact others and access professional help (Fogel and Nehmad, 2009; Pohjanoksa-Mäntylä et al., 2009). Online forums could be places where certain topics on depression could be discussed and advice sought (Fogel and Nehmad, 2009), such as parents seeking advice regarding diagnosis of their children (Clarke and Sargent, 2010). ICTs appeared to facilitate disclosure of personal information regarding people's mental health (Horgan, McCarthy and Sweeney, 2013), indicating a need by people to talk about their issues (Lillevoll et al., 2013). Sharing and reading common experiences in a convenient and private manner through ICTs was appealing (Pohjanoksa-Mäntylä et al., 2009; Proudfoot et al., 2010).

Engagement with (m)ICTs while in recovery

ICTs that were stimulating to use and interacted well with people's senses and cognitive abilities enhanced engagement (Purves and Dutton, 2013), which was seen as vital in terms of online depression therapy (Lillevoll et al., 2013). For people who had struggled with symptoms of depression for many years, often finding it difficult to do anything about them, taking the initiative, or accepting treatment, was sensed as motivating (Wilhelmsen et al., 2013). With engagement came an enhanced sense of personal agency from interacting with ICTs, and the completion of online activities offered a sense of empowerment (Purves and Dutton, 2013; Stjernswaerd and Oestman, 2011). Becoming aware of the potential to act and be engaged in seeking knowledge facilitated people to help themselves and others (Stjernswaerd and Oestman, 2011). Interacting with a computer was not seen as a passive activity; in fact, for some, the process of sitting down, switching on the computer and trying to do things was viewed as an active process (Purves and Dutton, 2013). The sheer act of doing something about their mood problem was important, providing a sense of satisfaction and relief (Lillevoll et al., 2013). Although online treatments were not an ideal solution, taking action was viewed as an achievement, creating a sense of control, hope and positivity for recovery (Lillevoll et al., 2013; Wilhelmsen et al., 2013).

Functionality as usefulness

The functionality of ICTs was an important factor in their adoption and use (Proudfoot et al., 2010). Having functions to: compare information from day-to-day to week-to-week; track information; format content; use online diaries, forums, bookmarks, blogs, and messages; and to control privacy settings, invitation functions, e-reminders and options to reply directly to clinicians, were important usage features (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011; Stjernswärd, Östman and Löwgren, 2012; Takahashi et al., 2009; Todd, Jones and Lobban, 2013; Watkins et al., 2011). Email was seen as a popular function of ICTs to communicate with friends and possibly clinicians (Pohjanoksa-Mäntylä et al., 2009). Emails were seen as desirable due to their being less intrusive and their ability to stimulate engagement (Todd, Jones and Lobban, 2013). Reminder emails and SMS messages sent by clinicians were desirable. They were viewed by people as a way of supporting their management of their mood disorder, making people feel more connected with their clinician, and encouraging engagement, as long as they were tailored and customised for every individual (Proudfoot et al., 2010; Watkins et al., 2011). Online search engines were used, often through multiple searches, to find drug

information or to access websites recommended by friends (Pohjanoksa-Mäntylä et al., 2009). Mobile phones could be used to make calls and send text message, take photos, and use other functions, such as a calculator, a clock, or an alarm to set reminders (Proudfoot et al., 2010). They could also be used to access the Internet to check emails, go on social networking sites such as Twitter and Facebook, get directions, use Google, play games and to browse (Proudfoot et al., 2010).

Usability offers choice

How well people engaged and used ICTs was an important factor in their embedded nature, as technology that was too difficult to use had the potential to become an additional stressor and add to a sense of failure (Proudfoot et al., 2010). ICTs that were convenient and easy to use, that provided the flexibility and control to access information whenever someone wanted, were desirable (Fogel and Nehmad, 2009; Proudfoot et al., 2010). Having a user-interface that was varied, with an array of images, colours, information and music could potentially stimulate the user (Purves and Dutton, 2013). Being able to use ICTs in different locations, such as at work, at home or on public transport, appeared to be an important factor when assessing their usability by the user (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011). Having layout and content that was clean and uncluttered appeared to improve user satisfaction, promoting user-friendliness and usability (Stjernswärd, Östman and Löwgren, 2012). Potential factors for minimising user-friendliness included delays, additional software requirements, and broken links (Todd, Jones and Lobban, 2013). Personalisation appeared to be an important component of ICT usability. Having the option to make personal choices was valued when interacting with ICTs (Cheek et al., 2014). The ability to adapt settings acknowledged that individuals had different preferences, styles and expectations towards the technology they were using (Pagliari et al., 2012). Having a personalised computer response signified for individuals a sense of familiarity and care, helping people to engage in self-help activities (Purves and Dutton, 2013). For some, having a computer programme that could tailor learning to individual responses fostered a 'personal' relationship with the ICT, producing an emotional connection (Purves and Dutton, 2013). Controlling aspects of use appeared to be important to individuals in terms of their identification and location. ICTs facilitated people's privacy by allowing individuals to control disclosure, their identity, and access location (Bradley, Robinson and Brannen, 2012; Cheek et al., 2014). People used mobile phones for convenience, speed, ease of access, and the discretion it afforded the user. Individuals saw mobile phones as a

possible way to monitor mood, improve self-awareness, self-management and well-being, and to access support when it was not possible to see a clinician, in a medium that was less confronting than face-to-face assessment (Proudfoot et al., 2010).

What are the perceived benefits and challenges of using ICTs by people with mood disorders?

This section focuses on the benefits and challenges of using technology by people with mood disorders.

Benefits of using technology

The analytical theme had three sub-categories; convenience, helped with stigma; and cost-effective.

Convenience

Users of ICTs liked the option of being able to choose where to use technology, that is to say, at work or in the convenience of their own homes (Bradley, Robinson and Brannen, 2012; Parker and Orman, 2012; Stjernswaerd and Oestman, 2011). Being able to use ICTs at home provided flexibility for the user in terms of when they used it and where they used it, while potentially engaging with other media (such as TV) (Bradley, Robinson and Brannen, 2012). Having easy access to information from around the world, at any time of the day, through the use of the Internet was seen as being useful compared to using books (Fogel and Nehmad, 2009; Stjernswaerd and Oestman, 2011). Easy access to no-cost treatment online was viewed as being convenient and an appealing alternative to referral to specialist services with long waiting times or GPs who were assumed to have little mental health knowledge (Lillevoll et al., 2013). A mobile phone app was viewed as being highly convenient, portable, always accompanying the person, and a discreet way to work on one's issues (Proudfoot et al., 2010). Practitioners using an online mood assessment programme felt that it helped make their care of patients more accurate, easier and collaborative (Parker and Orman, 2012).

Helped with stigma

Young people were concerned about feeling shame or embarrassment if other people realised they had depression, increasing a sense of helplessness (Fleming, Dixon and Merry, 2012; Fogel and Nehmad, 2009; Horgan, McCarthy and Sweeney, 2013). Fear of being judged by others due to having a mental health issue was a particular problem faced by some young users of ICTs and it became a specific reason for using the technology (Cheek et al., 2014; Fleming, Dixon and Merry, 2012). Fear of school peers finding out and potential links to bullying led users to engage with ICTs in the privacy of their own

homes (Cheek et al., 2014). People who felt shame due to experiencing emotional problems invested effort into hiding their symptoms and, therefore, a website where people could discuss their emotional problems anonymously was considered a good thing, and where, often, experiences would be shared for the first time (Horgan, McCarthy and Sweeney, 2013). The use of websites to support the relatives of people with depression appeared to decrease feelings of stigma and promote openness, this facilitated people to talk more openly about their situation and to feel strengthened (Stjernswaerd and Oestman, 2011). For people living in small towns and communities the fear of stigma would lead to people preferring to use online chat sites instead of accessing local practitioners for support with their mental health (Cheek et al., 2014).

Cost-effective

People were aware of long waiting times for specialist health services and, with the alternative being expensive private treatment, the low-cost nature of ICTs made them desirable to use (Lillevoll et al., 2013; Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011). ICTs were seen as cost-effective solutions to access-to-care problems faced by people living in remote localities by both patients and health professionals (Swinton, Robinson and Bischoff, 2009).

Challenges of using technology

There are certain challenges involved with using ICTs that are worth mentioning as they restricted use and the potential benefits of using the technology. The theme contains four sub-categories: confidentiality; non-users; trust; and usage difficulties.

Confidentiality

There were concerns regarding the safety of using ICTs for treatment purposes due to queries relating to the levels of confidentiality that the technology could provide (Barnes et al., 2011; Swinton, Robinson and Bischoff, 2009). Some users, for example, felt discomforted about the possibility of strangers being able to see comments on social networking sites (Whitehill, Brockman and Moreno, 2013). Limited functionality, in terms of privacy control, made people feel uncomfortable when disclosing sensitive information (Stjernswärd, Östman and Löwgren, 2012). There were people who preferred not to share personal information unless it was face-to-face, due to the importance they placed on confidentiality (Fogel and Nehmad, 2009). Being able to use ICTs anonymously was an important aspect in managing confidentiality and a factor when assessing the appropriateness of using an online intervention (Horgan, McCarthy

and Sweeney, 2013; Stjernswaerd and Oestman, 2011; Stjernswärd, Östman and Löwgren, 2012).

Non-users

There were people who actively chose not to use ICTs as a means for getting help (Cheek et al., 2014). Reasons included having no interest in certain forms of technology, not being familiar with technology, and being too unwell to use technology, for example, reduced energy and motivation due to an acute depressive phase (Cheek et al., 2014; Fogel and Nehmad, 2009; Nicholas et al., 2010). There were also practical reasons for not using ICTs, such as having no need to use it, not identifying with the content, inhibitive cost, or having no Internet reception (Proudfoot et al., 2010; Wilhelmsen et al., 2013).

Trust

Users needed to believe and trust in the ICTs they were using (Barnes et al., 2011; Wilhelmsen et al., 2013). For serious medical assistance the Internet was potentially not something trusted by some users, who preferred to speak to a professional in person (Fogel and Nehmad, 2009). There were concerns regarding the reliability and quality of the information available on the Internet, and doubts about whether people had the ability to identify trustworthy information themselves (Pohjanoksa-Mäntylä et al., 2009). There was a sense of uncertainty by some users regarding the purpose of online interventions, which affected their usage (Drake, Csipke and Wykes, 2013; Nicholas et al., 2010; Proudfoot et al., 2010). Data security was a concern due to unclear or confusing instructions, making some users fearful of being taken to court if mistakes were made (Kurki et al., 2013), while others were concerned about computers remembering their passwords, thus enabling others to access their information (Stjernswaerd and Oestman, 2011).

Usage difficulties

Having technology that was too difficult to use was problematic in terms of form and function (Proudfoot et al., 2010), as people were reluctant to use ICTs if the software was slow, had broken hyperlinks, or was unnecessarily complex or impersonal or required additional software to enable its use (Kurki et al., 2013; Swinton, Robinson and Bischoff, 2009; Todd, Jones and Lobban, 2013). There were issues with online programme content if it was deemed repetitious, too long, difficult to navigate, incompatible with other web browsers, or theory-driven (Parker and Orman, 2012; Sobowale et al., 2013). Being

unfamiliar with online etiquette hindered discussions taking place, for example, not knowing how online forums worked prohibited people from initiating conversations (Stjernswaerd and Oestman, 2011). External barriers to use included: lack of computers; lack of physical space; inappropriate content; lack of personalisation; being unaware of the programme's existence; and difficulties in managing competing demands (Bradley, Robinson and Brannen, 2012; Donkin and Glozier, 2012; Fleming, Dixon and Merry, 2012; Nicholas et al., 2010; Todd, Jones and Lobban, 2013; Wilhelmsen et al., 2013).

Internal barriers to ICT usage were covered by the aspects discussed earlier, such as the fear of being judged, and the shame or embarrassment of people finding out that someone had depression (Fleming, Dixon and Merry, 2012). Thus, although ICTs helped some people overcome stigma, it was still an issue effecting usage (Bradley, Robinson and Brannen, 2012). Other internal emotional states affecting usage included: helplessness; fear of reprisal; denial; mania; low mood; low motivation; anxiety; frustration; confusion; disappointment; and reduced concentration levels (Cheek et al., 2014; Donkin and Glozier, 2012; Fogel and Nehmad, 2009; Nicholas et al., 2010; Purves and Dutton, 2013; Richards and Timulak, 2012; Todd, Jones and Lobban, 2013). Cognitive deficits, such as attention problems and a reduction in memory, also effected usage abilities (Barnes et al., 2011), evidence, therefore, that some symptoms of mood disorders affected the person's ability to engage and use the technology. A person's level of computer literacy was thought to be a potential issue, affecting how well technology was used and one's awareness of the resources available online (Barnes et al., 2011; Fogel and Nehmad, 2009; Proudfoot et al., 2010). People's attitudes to treatment affected their engagement with technology, for example; some people preferred keeping their issues a secret and would rather not seek help, whereas others would prefer to see someone face-to-face (Fleming, Dixon and Merry, 2012; Fogel and Nehmad, 2009; Swinton, Robinson and Bischoff, 2009). Online interventions that were perceived to have a unidirectional relationship between the user and the intervention led to people to query the relevance of the programme and question their intentions to continue (Donkin and Glozier, 2012). The dissemination of information to people regarding their condition was not always straightforward, as some people found too much information confronting, overwhelming, and anxiety-provoking (Nicholas et al., 2010; Pohjanoksa-Mäntylä et al., 2009). There was a risk that solely communicating to others about depression through online social networking sites risked additional psychological burdens by reading and writing negative comments, potentially triggering downward depressive spirals (Takahashi et al., 2009).

Managing time was an issue affecting ICT usage, with people reporting that they either did not have enough time to complete interventions, or that using a system was overly time-consuming (Donkin and Glozier, 2012; Drake, Csipke and Wykes, 2013; Kurki et al., 2013; Parker and Orman, 2012; Wilhelmsen et al., 2013). Also, time factors were associated with events in people's personal lives, such as time pressures and competing demands caused by being too busy, or their lives being too hectic (Nicholas et al., 2010).

In what ways are ICTs being used for self-management by people with mood disorders?

This section details how people used ICTs to self-care, self-management or engage in self-management support.

Using technology to look after oneself

Within this theme there were seven sub-categories relating to how people used ICTs for self-care, self-management, and self-management support purposes: acquiring relevant knowledge; help-seeking; support; managing depressive symptoms; time management techniques; taking responsibility; and awareness.

Acquiring relevant knowledge

The use of ICTs appeared to support people to acquire the relevant knowledge in regards to their mood problems, providing a sense of recognition in situations that might be difficult to accept or that might be unfamiliar, thus helping them feel supported (Lillevoll et al., 2013). ICTs were used to acquire information about treatment, diseases, drug information and the experiences of others (Pohjanoksa-Mäntylä et al., 2009; Takahashi et al., 2009). Some people read information specifically targeted at health professionals, as they deemed it to be the most comprehensive and up-to-date sources of information (Pohjanoksa-Mäntylä et al., 2009). Seeing relevance in material was a factor in the process of acquiring new self-knowledge, as was learning, together with reflecting and restructuring new knowledge, when it suited one's own needs (Lillevoll et al., 2013). ICTs were used as a source of acquiring self-help information and skills, and also as a means to seek help through online support groups and forums (Fogel and Nehmad, 2009; Horgan, McCarthy and Sweeney, 2013; Pohjanoksa-Mäntylä et al., 2009; Richards and Timulak, 2012). Some people used self-help material to devise their own frameworks for exploring their issues and identifying solutions:

> *Participants also described using the self-help material to establish a framework within which they could then begin the work of exploring their problems in some detail, and identifying potential solutions. For some participants different*

exercises in the self-help material seemed to provide a 'check' for personal psychological assessments and responses. (Purves and Dutton, 2013, p. 312).

Sitting down at a computer at regular times to work on a self-help programme appeared to be of benefit, with people experiencing: an empowering effect; a change of perspective; increased personal agency; and a way of keeping new learning at the forefront of their minds (Purves and Dutton, 2013). A programme to help monitor depression (on a mobile phone) was seen to hold the potential to be a motivational tool to support people to look after themselves (Proudfoot et al., 2010). Self-help books were viewed as potentially having a number of disadvantages, such as being hard to read, lack of interaction, and difficult to engage with, with people preferring to have an online option (Todd, Jones and Lobban, 2013). ICTs provided people with informational support and the ability to delve as deeply as they wished into certain topics, such as medication management, sourcing counselling services, negative thinking, and poor concentration (Barnes et al., 2011; Horgan, McCarthy and Sweeney, 2013). The Internet was considered a key component in providing greater access to health information by patients in order to receive benefits from engaging in self-help (Barnes et al., 2011; Horgan, McCarthy and Sweeney, 2013; Lillevoll et al., 2013; Pohjanoksa-Mäntylä et al., 2009; Purves and Dutton, 2013).

Help-seeking

ICTs helped to provide a sense of control in people's lives by providing them with the opportunity to access information to help themselves, help them understand when to seek help, and about what help was available (Barnes et al., 2011; Fogel and Nehmad, 2009). They facilitated people to prepare for meetings with their health professionals, making treatments more collaborative (Pohjanoksa-Mäntylä et al., 2009). Help could be sought via accessing online forums, where such requests were neither difficult to supply nor costly (Vayreda and Antaki, 2009), or by getting in touch with friends and family online (Fleming, Dixon and Merry, 2012).

Receiving and providing support

Receiving support through ICTs was seen to be of benefit by people with mood disorders (Watkins et al., 2011). People required support in maintaining relationships and dealing with broken relationships whilst recovering from a mood disorder (Todd, Jones and Lobban, 2013). Methods of support that people found helpful would be the un-intrusive nature of emails in preference to telephone calls or home visits by professionals (Todd, Jones and Lobban, 2013; Watkins et al., 2011). People also benefited from receiving support from friends, family members and significant others to encourage and help them

to persist with using ICTs for their recovery (Wilhelmsen et al., 2013). Online programmes potentially offered a means to lessen stigma towards mental health and to encourage acceptance of conditions such as Bipolar Disorder (Barnes et al., 2011; Bradley, Robinson and Brannen, 2012; Stjernswaerd and Oestman, 2011). Online programmes supported people to feel validated and empowered, increasing feelings of confidence and self-worth (Parker and Orman, 2012; Purves and Dutton, 2013; Richards and Timulak, 2012).

Managing depressive symptoms

When designing ICTs and online interventions to support the management of depression through the promotion of mental health, importance was placed on providing evidence-based interventions and supporting people with practical and interpersonal issues caused by their conditions (Bae et al., 2009; Todd, Jones and Lobban, 2013). Online programmes supported users to work on solving problems through taking a structured approach using manageable steps (Purves and Dutton, 2013; Richards and Timulak, 2012). If people focused on achieving manageable goals, it helped them to feel a sense of completion (Donkin and Glozier, 2012; Todd, Jones and Lobban, 2013). Online programmes supported people with cognitive restructuring, facilitating the rethinking of stressful situations, challenging negative thinking patterns, and, also, helping them to make behavioural changes by breaking negative cycles of inactivity, self-incrimination and withdrawal, leading to secondary benefits, such as becoming closer to those around them (Bradley, Robinson and Brannen, 2012; Lillevoll et al., 2013). Peer support accessed through ICTs helped people to feel more positive and to understand themselves better, leading to behaviour change and giving them the confidence to negotiate changes in treatment (Takahashi et al., 2009). Accessing online medication information through ICT use prompted some people to request additional drug information from their prescriber regarding risks and benefits of antidepressants and, conversely, made others change the dose of drug or discontinue the prescription without first seeking professional guidance (Pohjanoksa-Mäntylä et al., 2009). ICTs potentially facilitated people to take the first step in managing their recovery after years of deliberation:

> *In most cases, patients had been considering the pros and cons of seeking help for a long time, even for years. One typical response to taking this difficult step was the sense of relief and satisfaction that patients felt when they took action to address their problem. Some patients had not gotten very far with the process and had not experienced any improvement, while others were highly active during treatment and making deliberate changes to their lives one step at a time. In both*

cases, patients talked about the mere act of doing something as important. (Lillevoll et al., 2013, p. e126)

Having a sense of curiosity towards ICTs, a will to learn self-management techniques, and noticing an improvement in their health through using ICTs, motivated persistence with an intervention (Donkin and Glozier, 2012; Wilhelmsen et al., 2013). ICTs supported people to stay in contact with health professionals involved in their care and to establish therapeutic relationships, despite being separated by distance (Fogel and Nehmad, 2009; Swinton, Robinson and Bischoff, 2009; Watkins et al., 2011).

Time management techniques

Learning time management techniques facilitated people to organise their time better, helping them meet deadlines and prepare for exams (Bradley, Robinson and Brannen, 2012; Wilhelmsen et al., 2013). Time was required to be set aside to use ICTs, and having personal time, in a private space, was appreciated (Stjernswaerd and Oestman, 2011).

Taking responsibility

People who took responsibility for their treatment had a sense of determination and curiosity and who attributed their success to their own endeavours appeared to benefit more from treatment delivered through ICTs (Bendelin et al., 2011; Donkin and Glozier, 2012). People were able to use ICTs to contact health professionals and source health information for themselves in order to manage their own problems, moving from a position of passivity, to one of activity (Bendelin et al., 2011; Donkin and Glozier, 2012; Fogel and Nehmad, 2009; Lillevoll et al., 2013). Being aware of one's motivational levels and having responsibility for maintaining motivation to use interventions delivered through ICTs was helpful (Drake, Csipke and Wykes, 2013). People who managed to persist with online interventions identified intrinsic motivations and extrinsically motivated strategies:

These included developing habits, recognizing personal values about completion, and identifying the benefits for others if the benefits for themselves were not immediately obvious. (Donkin and Glozier, 2012, p. e91)

As mentioned earlier, holding certain values would help people to complete online programmes, and others found their own way of working with material to face and overcome challenges, seeing difficulties as potentially valuable lessons to be learned (Bendelin et al., 2011; Donkin and Glozier, 2012).

Raising awareness

People who used ICT interventions potentially became aware of holding high expectations towards the technology. This could lead to feelings of disappointment if the programmes did not meet all their needs, however, consideration would often be given to revisit and work with material to see whether it would be of benefit (Bendelin et al., 2011). Online programmes held the potential to help people to become more aware of their negative thinking habits, promoting reflection and the challenging of thoughts, moving people in a more positive direction towards self-acceptance (Lillevoll et al., 2013; Stjernswaerd and Oestman, 2011; Todd, Jones and Lobban, 2013). Participant feedback in the design process of ICTs potentially influenced the goals of particular programmes by centring awareness on the importance of managing depressive symptoms among their users (Bae et al., 2009). The use of ICTs to access information and seek other people's opinions through online forums, for example, offered different viewpoints and helped people to understand more about the difficulties they faced (Stjernswaerd and Oestman, 2011).

What role, if any, do (m)ICTs play in terms of social relationships for people with mood disorders?

The interpersonal and community aspects of using ICTs were captured under the analytical theme 'Technology, relationships and society', which had three sub-categories: social support; online social networks; and sharing through ICTs.

Social support

Depression was thought to have a number of social origins by users of ICTs, affecting the social aspects of the person, such as their socialisation skills and influencing social phobia (Clarke and Sargent; 2010; Fogel and Nehmad, 2009; Horgan, McCarthy and Sweeney, 2013). However, using ICTs in a social manner appeared to be of benefit to people and was described as one of the predominant reasons for using the technology on a daily basis (Proudfoot et al., 2010), whether that was sharing experiences with peers, using discussion forums and electronic support groups, or having one's feelings supported in times of isolation by receiving communication from a supportive resource (Pohjanoksa-Mäntylä et al., 2009; Watkins et al., 2011; Wilhelmsen et al., 2013). Regaining and being part of social relationships during difficult periods appeared to suggest that ICTs had an alleviating effect on people's conditions, becoming a driving force and motivational aspect of treatment:

Overall, the feeling of being part of a social environment, and not being alone was experienced as positive. A sense of belonging through attachment, being valued and understood, satisfied a need for relatedness and was positive for motivation. To want and be wanted socially was a driving force to engage and persist in treatment. (Wilhelmsen et al., 2013, p. 301)

Using ICTs to go online afforded people a sense of not being alone, thereby gaining a shared understanding of people who were experiencing similar difficulties (Todd, Jones and Lobban, 2013; Vayreda and Antaki, 2009; Wilhelmsen et al., 2013) and at times allowed them to come to the realisation that things were not as bad as they thought:

It's good to let everyone know what's bothering you and finding out that others are feeling the same thing has really helped, I thought I was the only one feeling this way, but clearly not. (Horgan, McCarthy and Sweeney, 2013, p. 87)

Online forums appeared to have the potential to fill a social gap in people's lives where strangers could become more like family members (Stjernswaerd and Oestman, 2011). When people felt too lethargic or fatigued to leave their homes, the Internet facilitated contact with people and was a source of information if people did not have friends around them to whom they could ask questions (Fogel and Nehmad, 2009; Pohjanoksa-Mäntylä et al., 2009). Meeting similar people in virtual environments created a sense of acknowledgement and recognition, decreasing feelings of social isolation, loneliness and alienation (Barnes et al., 2011; Stjernswaerd and Oestman, 2011; Wilhelmsen et al., 2013).

Online social networks

ICTs provided people with the capacity to go online and communicate with people who were experiencing similar issues, to ask advice or discuss certain topics in a convenient and accessible manner (Fogel and Nehmad, 2009; Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011). Online forums provided people with the opportunity to exchange information, post messages, provide support and ventilate their feelings through conversation and feedback (Clarke and Sargent, 2010; Stjernswaerd and Oestman, 2011). Using discussion forums alleviated for some their concerns regarding the privacy of using large social media websites (Todd, Jones and Lobban, 2013). Online discussions allowed people to get things off their chest, sometimes for the first time; to see alternative perspectives, promote understanding, support each other, and experience catharsis (Horgan, McCarthy and Sweeney, 2013; Pohjanoksa-Mäntylä et al., 2009; Stjernswaerd and Oestman, 2011; Takahashi et al., 2009).

ICTs provided people with the opportunity to receive and give peer support (Sobowale et al., 2013; Stjernswaerd and Oestman, 2011; Takahashi et al., 2009; Todd, Jones and Lobban, 2013). Peer support helped people engage with online interventions, overcome procrastination and motivational issues, and helped them to understand themselves more, leading to the potential for behaviour change (Takahashi et al., 2009; Todd, Jones and Lobban, 2013). People were able to give and receive emotional support to others (Horgan et al., 2013; Stjernswaerd and Oestman, 2011; Vayreda and Antaki, 2009), provide empathic responses (So et al., 2013; Stjernswaerd and Oestman, 2011), and improve interpersonal relationships (Bae et al., 2009; Lillevoll et al., 2013) through peer support. Designing interventions that used real portrayals of people experiencing issues instead of actors or experts was viewed as being more acceptable, credible and relatable (Barnes et al., 2011; Bradley, Robinson and Brannen, 2012).

Sharing through ICTs

People used ICTs as an opportunity to share their feelings, emotions and personal stories (Horgan, McCarthy and Sweeney, 2013). The privacy that ICTs provided people with allowed them to talk freely regarding their issues and to share their innermost thoughts, which was something they considered to be very important (Lillevoll et al., 2013; Stjernswaerd and Oestman, 2011). The sharing and exchange of experiences and knowledge, in a supportive environment, helped people to: narrate their experiences; gain a sense of community; share tips; and provide a sense of comfort, strength and hope in people (Pohjanoksa-Mäntylä et al., 2009; Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011; Stjernswärd, Östman and Löwgren, 2012; Takahashi et al., 2009). People were also able to share their problems and receive support and empathic understanding, sometimes from anonymous strangers:

> *It's about empathy and the realization that you're not alone. That others are feeling the same way you do and are having trouble coping. And being able to tell someone/people, even if it is just anonymously putting it out there into the virtual domain, is supposed to be cathartic in some way. And it kind of is. And if others do the same you might realize that your problems aren't actually as bad as you thought.* (Horgan, McCarthy and Sweeney, 2013, p. 87)

Being able to read other people's experiences and to share features of their depression and the problems they faced helped promote a sense of normality in people, lessening the social and psychological isolation resulting from feeling different from others (Barnes et al., 2011; Horgan, McCarthy and Sweeney, 2013; Stjernswaerd and Oestman, 2011; Vayreda and Antaki, 2009). For those who decided to share their situation with others,

they tended to favour closest friends or family (Bradley, Robinson and Brannen, 2012; Fleming, Dixon and Merry, 2012), and if they were unsure about how to tell people about their condition, advice was sought from online websites regarding how to tell people in a positive way (Todd, Jones and Lobban, 2013). ICTs facilitated people to share their experiences and gain a sense of self-distance, creating perspective, which might not have been there before (Stjernswaerd and Oestman, 2011). Using ICTs made some users less inhibitive in terms of the personal information they shared, as they found ICTs less confronting than face-to-face interaction and they were secure in the knowledge that it was private (Fogel and Nehmad, 2009; Horgan, McCarthy and Sweeney, 2013; Stjernswaerd and Oestman, 2011).

What are the views and experiences of healthcare providers regarding the use of (m)ICTs by patients with mood disorders?

Data were not as forthcoming to answer this review question compared to the others, however, the analytical theme 'healthcare providers' experiences of technology' highlighted how ICTs have been incorporated into practice and professionals' views of using such technology. This analytical theme had three sub-categories: ICT part of professional-patient interaction; professional perspectives; and professional challenges.

ICT part of professional-patient interaction

The opportunity to be able to communicate with a professional during treatment was seen as being very important, however, the levels in terms of satisfaction in the amount of contact with professionals varied (Lillevoll et al., 2013). A trusting, therapeutic relationship with a professional was seen as being fundamental for treatment (Lillevoll et al., 2013; Swinton, Robinson and Bischoff, 2009) and, for some, professionals using computers and the Internet were daily occurrences in their communication with patients (Kurki et al., 2013). Nurses used ICTs predominantly for communication with their patients and for information transfer:

> *Our data showed that computers are in a central position in nurses' daily work at adolescents' out-patient clinics. Computers were used in daily tasks and patient care communication between professionals. The participants stated that they used computers in several different activities related to an electronic patient record system. For example, the nurses organized patients' appointments, recorded patient visits and took care of the electronic accounting system.* (Kurki et al., 2013, p. 98)

ICTs provided people with alternative formats for communicating with their health professionals. For those who were uncomfortable with traditional approaches, email was

replacing face-to-face interaction, placing more demands on the professionals' time to check and send emails (Kurki et al., 2013). Opinion was divided regarding whether ICTs should be the sole communication method, or rather, an adjunct to more traditional approaches (Fiordelli, Diviani and Schultz, 2013; Fogel and Nehmad, 2009; Kurki et al., 2013; Parker and Orman, 2012, Proudfoot et al.; 2010, Swinton, Robinson and Bischoff, 2009; Watkins et al., 2011; Wilhelmsen et al., 2013). Using ICTs held the potential to make care more collaborative between professionals and patients in the decisions that they made about treatment (Parker and Orman, 2012; Watkins et al., 2011).

Professional perspectives on their and their patients use of technology

There was a view held amongst some health professionals, and participants, regarding the importance of people having the option to talk to a professional when using ICTs (Bendelin et al., 2011; Lillevoll et al., 2013). There was also the view that using computer programmes for depression would unlikely reduce clinical demand, as they would not stop people seeking support from professionals (Fleming, Dixon and Merry, 2012). Therefore, health professionals viewed ICTs as having both positives and negatives, and there was a need to support patients to navigate the potential pitfalls of using this type of technology:

> *The nurses used computers and the Internet in their daily work and communication with adolescents. The nurses reported that they searched for information on wellbeing from the Internet together with the adolescents. Usually, the topics were related to hobbies, timetables and special mental health services offered by different associations. The participants reported that they also discussed with adolescents how to behave when using the Internet and sup- ported them in safe Internet use. This was because, according to the participants, adolescents using outpatient psychiatric care are a vulnerable group who need support on how to behave in social media. Moreover, the participants felt that the adolescents used the Internet to introduce themselves to nurses in their own way. For example, the adolescents wanted the nurses to visit their own websites or the Internet.* (Kurki et al., 2013, p. 98)

Nurses felt that, although ICTs had benefits, the increasing expectations of use were introducing problems into three main areas; technology-based, role-changing, and organisational problems (Kurki et al., 2013). Systems were considered to be too complex and time-consuming, with a shift away from care to one resembling secretarial work in organisations that did not provide enough time to prepare and support ICT use, or provide clear enough guidance to make those who used the systems feel safe (Kurki et al., 2013; Swinton, Robinson and Bischoff, 2009).

Professional challenges

The literature suggests that health professionals may well be aware of patients using ICTs, and viewed the potential for change, in terms of communication methods and the effects on the therapeutic relationship, with mixed feelings (Kurki et al., 2013; Lillevoll et al., 2013; Swinton, Robinson and Bischoff, 2009). For some younger users of ICTs, trust was a significant problem, making it a challenge to engage and refer them to health professionals and mental health services (Fleming, Dixon and Merry, 2012; Sobowale et al., 2013). Some health professionals were wary of ICTs, expressing concern that; assessment would be difficult over a distance (Swinton, Robinson and Bischoff, 2009), having no offline relationship might make it harder to assess online relationships (Whitehill, Brockman and Moreno, 2013), and using ICTs might make people query the casual factors of their condition (Clarke and Sargent, 2010).

Summary

The review of the literature relating to people with mood disorders and their use of ICTs of relevance to mobile technology has provided a tentative understanding of their uses, challenges, and benefits, spanning their use from the intrapersonal, interpersonal and through into wider society. The systematic review mapped and categorised all published qualitative research papers in the domain of health and ICT research. Doing so clearly identified a gap in the research literature, as no studies had specifically explored how people with mood disorders used their existing mobile technology in their lives. It appears that, to date, research had focused on user views after the design of contents and formats to simply explore usability. This contrasts with the use of real UCD approaches where intended users are involved from the design conception stage. Therefore, an important outcome of the meta-synthesis was identifying the requirement for further qualitative research in the form of a primary in-depth study. A primary in-depth study could help understand the meaning that mICTs hold for people with mood disorders and how they make us of mICTs, both as objects in their daily lives, and, more specifically, for self-management purposes. The in-depth primary study could also help understand the perspectives of health and social professionals regarding their use of mICTs for care delivery. In so doing, the in-depth primary study could help inform both those delivering care, and importantly, those receiving care, to fully harness the benefits of mICTs to support recovery.

Chapter 3: An in-depth exploration of mobile information and communication technology use by people with mood disorders, and their health and social care professionals: Study aims, methodology and methods

Introduction

The chapter starts by introducing the research problem and the objectives of the primary in-depth study. This is followed by a description of the methodological considerations. Approaches that were open to me, as the researcher, are highlighted before a rationale is provided to substantiate why the chosen approach and its ontological and epistemological perspectives were deemed appropriate to address the research questions. The methods used for completing the study are then outlined, and examples of the relevant study documentation are provided (Appendix 5).

The research problem

The first two chapters identified that the views and experiences of patients (end users) in the development of management programmes and the design of eHealth and mHealth interventions were under-represented. Further research was therefore required to help understand how people use mICTs in their everyday lives, and, more specifically, how they manage their mood disorders. Such research would help to explain how people construct their understanding of, and how they co-construct the meaning of their use of mICTs. The lack of validated tools particular to the information requirements of this study (mICT use by people with mood disorders) deemed it necessary to conduct exploratory research focusing on in-depth experiences. Thereafter, measures and interventions can be developed specifically for this population group, based on the findings. Quantitative methodology was rejected, as it was unable to provide in-depth information on individual experiences related specifically to how people with mood disorders use mICTs. A qualitative methodology, therefore, was ideally placed to provide the richness of data being sought. It was decided that the primary in-depth study, rather than concentrating on a specific app, website or certain piece of hardware, would instead explore the complex social phenomena of how people make use of their existing ubiquitous mobile technologies in their everyday lives, and, more specifically, how they might use it to manage their recovery from mood disorders. Instead of understanding the micro-level use of individual software or hardware, a macro-level, conceptual and

theoretical understanding was sought to explain how mICTs are embedded into the lives of people with mood disorders. Understanding how this technology was being made use of and incorporated into people's lives will provide valuable information on how technology was subjectively and collectively perceived (Adams, Lunt and Cairns, 2008; Pace, 2004). Gaining this understanding will help to establish ways to harness mICTs for therapeutic purposes, and will provide a robust foundation, for further research and design.

Study objectives

Primary Objective

The aim of the study was to explore the views and experiences of using mICTs by patients with mood disorders. The research questions were:

4. Why do people with mood disorders use mICTs?
5. What are mICTs being used for by people with mood disorders?
6. What are the perceived benefits and challenges of using mICTs by people with mood disorders?
7. In what ways are mICTs being used for self-management by people with mood disorders?
8. What role, if any, do mICTs play in terms of social relationships for people with mood disorders?

Secondary Objectives

The aim was to explore health and social care professionals' views of the use of mICTs by them and their patients. The research question was:

9. What are the views and experiences of health professionals regarding their own use, and use by their patients with mood disorders, of mICTs?

The research questions were designed to capture, as fully as possible, the range and depth of the participants' views and experiences whilst also being flexible enough to capture individual circumstances.

Methodology

Research paradigms and the philosophy of science

The following sections will introduce the concepts of the philosophy of science, paradigm, ontology, epistemology, and axiology, and their respective influences on the selection of the methodology. In research, ontological and epistemological questions tend to arise together, as constructing meaning is to talk about constructing meaningful reality (Crotty, 2012). Reflecting upon one's own ontological and epistemological positioning provides an opportunity to situate oneself within a way of thinking. To this end, I will also outline my own ontological and epistemological stance to situate my position within the research. This is a valuable exercise for deciding upon research methodologies and methods, allowing them to remain congruent and consistent with the person who is undertaking the research (Dickerson, 2010).

The Philosophy of Science

For the purposes of this thesis, *science* is defined as the systematic search for knowledge. The philosophy of science refers to the conceptual foundations underpinning the search for knowledge, and has, incorporated within it, a number of beliefs or assumptions regarding ontology, epistemology, axiology and methodology (Ponterotto, 2005).

Paradigm

A paradigm can be defined as a conceptual and philosophical framework based on a set of assumptions, which are often interrelated, that facilitate the organised study of the social world in question (Ponterotto, 2005). Therefore, research paradigms help to guide the researcher through the philosophical assumptions relating to their research, and support the selection of methods for their study.

Ontology

Ontology is concerned with understanding 'what is' the structure of reality and the nature of existence – it is the study of being (Crotty, 2012). One can be placed upon a realist-to-relativist ontological continuum. Realism argues that the world is made up of structures and objects that have cause and effect relationships with one another, in other words, that reality exists outside of the mind. Relativism, on the other hand, rejects such an ordered and law-bound construct of reality, and argues against the view that objects in the world can exist independently of our consciousness of them. It can be argued that

ontological concerns are fundamental as one cannot help but make assumptions about the nature of the world (Willig, 2013).

Epistemology

Epistemology is commonly defined as the 'theory of knowledge' (Dickerson, 2010). Dickerson (2010) suggests that epistemology helps one 'think about how we think' and 'know what we know'. There are many theories of knowledge: Dualism; Relativism; Realism; Pragmatism; Multiplism; Humanism; Emotionalism; Eclectism; Transcendentalism; Fictionalism; Individualism; Rationalism; Empiricism; Metaphorism; Logical Positivism; Social Constructivism; Thinking; Feeling (Wilkinson and Migotsky, 1994); Individualising; Systems; and Poststructural/Social Constructionism (Dickerson, 2010). Epistemologies have differing ways of interpreting how one feels and thinks, for example: a person's attitude towards reality; scale of intellectual development; and psycho-epistemological profile style (Wilkinson, 1989; Wilkinson and Migotsky, 1994).

Three epistemologies; Empiricism, Rationalism and Constructionism, are presented and discussed below, as they include both realistic and relativistic ontological perspectives. The epistemological stance of empiricism asserts that knowledge is created from structured observations and data (Wilkinson and Migotsky, 1994). Individualising epistemologies, such as empiricism and rationalism, conceptualise a person, problem and change to be of individual concern (Dickerson, 2010). Objects are essentially real and could be empirically proven. These theories originated when the philosophies of modernism and essentialism were the predominant outlook (Gergen, 1991). Rationalism holds the epistemological perspective that knowledge is gained by conceptual, logical and analytical thinking – knowledge comes a priori (Wilkinson and Migotsky, 1994). Social Constructionism argues that all knowledge is historically and culturally specific, where meaning is socially negotiated (Dickerson, 2010). Of importance is the interaction that people have with one another and their social practices (Burr, 2003). Social constructionism questions and doubts the taken-for-granted world (Gergen, 1985). Post-structuralism is an epistemology that lies within a post-modern social-constructionist philosophy. Post-modernism developed in the late twentieth century as a critique and reaction to modernism. Post-modernism focuses on multiplicity: multiple lives, multiple views and multiple possibilities (Dickerson, 2010). This was markedly different from empiricism and rationalism, for example, where truth and reality could be objectively

measured and reasoned. Social-constructionism questioned this objectification, suggesting that there were no longer fixed 'truths', what was 'real' was questionable, there was now the possibility of multiple truths, and reality was now a negotiated experience. Post-structuralism was a direct response and critique of structuralism, questioning any framework that suggests an internal structure to a thing, be it a person or family, for example (Dickerson, 2010; Hoffman, 1992). Viewed from a post-modern/social-constructionist/post-structural epistemology, the person is seen as 'constituted' rather than as essential, as being dependent on context, and as having access to multiple identities (Dickerson, 2010).

Axiology

Axiology is the philosophical study of values, and, in regards to research, of interest, is the role of the researcher's values on the scientific process. Positivists and post-positivists see no role for values in the scientific process, whereas constructivists-interpretivists argue that the researcher's values and lived experience cannot be disconnected from the research process (Ponterotto, 2005).

Finding your stance

Models of epistemological belief have tended to come in two forms: a developmental-stage model with qualitative subtypes (King and Kitchener, 2004), or a system of beliefs with quantitative differences along multiple belief continua (Hofer, 2004). Hofer (2001) has argued for the integration of both models to allow for the gathering of data for a fuller understanding of personal epistemology. Schommer (1994) suggested that people's beliefs about the certainty of knowledge are thought of as being on a 'frequency distribution' rather than on a continuum. Schommer (1994) suggested people have either 'sophisticated' or 'naive' views on knowledge. A sophisticated view of knowledge is more suited to manage uncertainty and change in knowledge, whereas naive learners consider knowledge to be largely unchanging (Kardash and Scholes, 1996). Kardash and Scholes (1996) corroborated research by Schommer (1990) indicating that epistemological beliefs affect the critical interpretation of knowledge and also that people's beliefs about the certainty of knowledge will cause them to change both the tentative as well as the contradictory information in order to conform to their beliefs (Kardash and Scholes, 1996).

The work of Perry (1970) on Harvard undergraduate students and their development from a certain to a more tentative understanding of knowledge through their college life has

provided the basis for further work on developmental models in personal epistemology (King and Kitchener, 2004; Kuhn, Cheney and Weinstock, 2000). Perry (1970) suggested a move from a rigid authoritarian position (dualism), through a multiplicity of positions, to a pluralistic, context-sensitive position, epistemologically (McAuliffe and Lovell, 2006). Schommer-Aikins and Easter (2006) suggested an alternative form of epistemology, one of pre-procedural, procedural and constructed knowers. In their proposal, constructed knowing is seen to be the most complex; embracing ambiguous and complex knowledge and the thoughts of others through empathy, including, at times, the distancing of themselves and using evidence when needed (Schommer-Aikins and Easter, 2006).

These models have in common a set of stages, levels and positions for epistemological understanding, which can be summarised in the model by Kuhn, Cheney and Weinstock, (2000); people move from being: a Realist to Absolutist to Multiplist to Evaluativist. In other words, people start with an objective interpretation of the world (Realist/Absolutist) where knowledge is certain and is passed down from authority figures and where thinking becomes the act of deciding the correct answer from the available options (Greene, Torney-Purta and Azevedo, 2010). As people's epistemology develops, they can move in to a multiplistic level where knowledge is considered to be entirely subjective. The furthest level of development is evaluativist, where people view knowledge as having both objective and subjective elements, where critical thinking skills are incorporated to evaluate evidence and make choices on multiple knowledge claims (Greene, Torney-Purta and Azevedo, 2010).

Hofer and Pintrich (1997) and Schommer-Aikins (2004) developed the two main system of belief models. The models represented personal epistemology using independent continua measuring participants' degree of belief on each continuum through the use of qualitative methods (Greene, Torney-Purta and Azevedo, 2010). Recently it has been suggested that system of beliefs may develop in an organised manner, and Greene, Torney-Purta and Azevedo (2010) suggest that development may be similar to the model proposed by Kuhn, Cheney and Weinstock, (2000). Greene, Torney-Purta and Azevedo (2010) recommend viewing personal epistemology as having ontological aspects to allow for connection to other areas of research. Personal epistemology can be viewed as a developmental continuum, ranging from Realist to Evaluativist. The more developed

one's epistemology, the greater the possibility for reflexivity and for managing the tension of holding complex and often contradictory theories in one's mind.

Abelson (1986) used the metaphor of beliefs being like old clothes to explain how one's belief system changes and develops: they're comfortable, and even if they are out-dated and worn, change is painful and new clothes require adjustment. Schommer-Aikins (2004) suggested that epistemological beliefs might be similar in this respect; they are usually unconscious unless an individual directly works with them consciously. Once acquired, Schommer-Aikins (2004) believes that epistemologies are held on to tightly, especially if they are formed in adulthood, that change is difficult, and that where a significant change occurs there may be associated feelings of confusion and discomfort.

Grappling with these complex ideas allowed me to explore my own philosophical, ontological and epistemological positioning, allowing me to locate my own stance within my work, which I outline here. The existence of matter, the world, the universe, and what I believe, is not dependent on me in as much as it will continue to exist without me being. What cannot exist is the meaning that my mind places on that outside reality. To follow this argument, I position myself as holding realist ontology whilst also balancing this against a relativist epistemology. I identify with a constructionist viewpoint; that meaning is not found, but rather, that it is constructed. Objects exist indeterminately and meaning can only emerge from objects when consciousness engages with them (Crotty, 2012). I am attracted to the approaches of social constructionism, and, in particular, I see myself located within a constructivist philosophical stance.

Therefore, I could be described as a pragmatic person who works within established systems with their positivistic viewpoints, while balancing my own ontological and epistemological understandings of the person. Evidence of this is demonstrated in my inquisitiveness into the personal narrative – the story of where people come from, how they are now, and, importantly, where they would like to be in their lives. I understand meaning as being meta-communicated in order to establish the best representation of the issues faced by the person experiencing mental health loss. This pragmatic and pluralistic approach is also adopted in my relationship with conducting research, as I am open to methodological pragmatism. I would be very open to adopting different qualitative and/or quantitative methodologies to explore data if I were confident in their use to answer specific research questions.

Pragmatism is used when dealing with health care systems and the differing professional world-views and their epistemological perspectives of the person. As objects, clinical diagnoses, such as mood disorders, are inherently unstable constructs relying on clinical interpretations and an individual's subjective disclosure to create form and meaning through negotiation (Marková and Berrios, 2009). While understanding that there are predominant models used within health care, such as the medical model, I also see 'disorders' as being the subjective lived experiences of people who have problems in their lives. Their dis-ease can also be viewed as being historically and culturally situated ways of framing their subjective problems in order to best manage their lived experiences (Joseph et al., 2009).

In setting out my understanding of ontology and epistemology, I have tentatively placed myself within the social constructionist philosophical arena. Gaining a basic understanding of one's ontology and epistemology can be useful for deciding upon complementary methodologies and methods. It can also be a useful reflexive exercise for gaining an awareness of the ontological and epistemological lenses through which one views the world and how one understands another, which was an invaluable resource for my research, and my thesis.

Selecting a methodology

The process of reflecting upon and choosing a methodology to answer the research questions at the heart of this PhD was difficult. There are numerous and varied qualitative methodologies available, each with their own focus, and these are placed upon a descriptive-to-interpretative continuum of data transformation. The purpose of this PhD was to explore the views and experiences of people with mood disorder, and those of their health and social care professionals, when using mICTs. Whilst this could have been answered using qualitative methods such as thematic analysis (Thomas and Harden, 2008) or content analysis (Hsieh and Shannon, 2005), the data generated by these approaches remain at a descriptive level. A typology designed by Sandelowski and Barroso (2003) for classifying findings positioned these methods within the topical and thematic survey levels of data transformation, with little transformation from the raw data, and, as such, they were rejected as methods for analysing the data.

Due to the clear gap in the research literature identified and discussed in earlier chapters, it is argued that a more interpretative and conceptually explanatory method was necessary to provide either a conceptually thematic description, or, more desirably, an interpretive

explanation of the research results (Sandelowski and Barroso, 2003; Sandelowski and Barroso, 2007; Sandelowski et al., 1997) and, in so doing, present a theoretically advanced typology of findings. In order to achieve this, a number of interpretive methodological approaches were assessed for relevance when developing the empirical study, namely; narrative analysis, case study, discourse analysis, ethnography, and phenomenology. Each approach was considered, however, each was found to be unsuitable, for differing reasons, as discussed below.

Narrative analysis

Narrative analysis is an approach to qualitative research that focuses on the way people narrate and account for their lives, being both claims of identity and constructions of themselves (Burck, 2005). Narrative theory informs a variety of approaches to narrative analysis. The work of Paul Ricoeur considers narration as an activity that produces plots, whereby reality and people's issues can be re-told through dynamic processes (Frid, Öhlén and Bergbom, 2000). Narration is a creative process with the reformulation of problems being dependent on the narrator's narrative skills, which they themselves may develop through lived experiences (Ricoeur, 1981, 1988, 1991, 1992, 2003). Through the processes of prefiguration, configuration and refiguration, people are able to develop new accommodating narratives of themselves (Mallet and Wapshott, 2011). Riessman (1993) presented three types of narrative analysis: the examination of a sequence of core narratives within an interview; examining the life story of a person; and analysing the narrative as poetic stanzas (Burck, 2005; Riessman, 1993). Whilst listening to people talk about their use of mobile technology was very important to gather rich data, the aim of the PhD was not to understand how people construct their self-accounts, but rather, to understand mICT use at a conceptual level. Therefore, as a methodology, narrative analysis was deemed unsuitable for the empirical study.

Case Study

Considered to be an approach to research rather than a methodology in its own right (Stake, 1995), case study methodology is worth mentioning here as it was given serious consideration as an approach to data collection for the PhD. This was due to case studies being able to obtain data from a number of sources, thereby allowing the topic to be well explored through different data collection lenses, and consequently providing the potential to generate rich data (Baxter and Jack, 2008). Study designs can include single, single case with embedded units, or multiple-case studies. In case studies, data are

obtained from interviews, documents, observations, physical artefacts and archival records. This variety aids triangulation, and, as a result, enhances the credibility of the data generated (Baxter and Jack, 2008). However, the approach makes use of conceptual frameworks (Stake, 1995; Yin, 2009) in order to help anchor the research during the data analysis. This was one of the reasons that this approach was rejected for use in my thesis, as it had the potential to limit the inductive nature of the study. The other reason, highlighted above, was the use of a variety of data collection techniques; as a result, the approach was deemed unfeasible due to the limited resources available to me, as the researcher.

Discourse Analysis

This methodology is concerned with analysing the uses of language and is a term that is often used to describe an array of different approaches (Hodges, Kuper and Reeves, 2008). These approaches fall within three main groupings, which will be mentioned in order to illustrate the methodology further, namely; discourse theory, discursive psychology, and critical discourse analysis (Phillips and Jørgensen, 2002). Discourse theory considers social phenomena as never being finished and, therefore, meaning can never be totally fixed, however, it is the work of the researcher to try and understand the social as a discursive construction and to assign meaning where they are able (Phillips and Jørgensen, 2002). Discursive psychology argues against cognitivism in favour of a social construction of social groups, attitudes and identities (Phillips and Jørgensen, 2002) to analyse how people make use of language to deal with their social environment in order to achieve interpersonal objectives (Willig, 2013). Critical discourse analysis is an empirical approach that offers methods and theories to analyse the relationships between text, language and discourse, and social and cultural developments, across different social domains (Hodges, Kuper and Reeves, 2008; Phillips and Jørgensen, 2002). Although this methodology complemented my own epistemology, it was considered unsuitable for the study, as the aim was not to understand how language affected mICT use.

Ethnography

As mentioned previously with other methodologies, the term itself, in this instance, 'ethnography', is used in different ways, to describe different things, due to there being no systematic and clear taxonomy (Hammersley, 2006). Ethnography is mainly viewed as a qualitative methodology, however, on occasion, the methods employed can generate quantitative data and analysis, and, therefore, the methodology can bridge both

philosophical paradigms (Hammersley, 2006). Ethnography researches cultural influences upon small groups or societies, aiming to produce detailed theoretical descriptions (Hammersley, 1992). In order to do so, the emphasis is placed on the researcher to study, in situ, people's communication and behaviour in particular settings:

> *This usually involves fairly lengthy contact, through participant observations in relevant settings, and/or through relatively open-ended interviews designed to understand people's perspectives, perhaps complemented by the study of various sorts of document-official, publicly available or personal.* (Hammersley, 2006, p. 4)

Ethnography, as a methodology for the study, was considered to be unsuitable due to the demands placed upon limited resources and the potential intrusive nature of observing participants in their home environment (Petty, Thomson and Stew, 2012). Also important to consider were the potential unhelpful effects of this methodology on recruitment and the difficulties in securing NHS ethical agreement due to lengthy periods of observational contact.

Phenomenology

Originating in Germany a century ago, the beginnings of phenomoneolgy were closely linked with philosophy and psychology and the work of Gadamer, Satre, Merleau-Ponty, Heidegger and Husserl (Earle, 2010; Petty, Thomson and Stew, 2012; Smith, 2009). The purpose of this methodology is to understand the lived experiences of people by exploring the meaning of a phenomenon (Petty, Thomson and Stew, 2012; Smith, 2009). Phenomenology is closely associated with hermeneutics, because language is considered to be the conduit by which people experience and make meaning between themselves and the objects in the world, and, as a result, the main way data are collected for analysis in this methodology is through interviews (Smith, 2009). Phenomenology would have been an appropriate methodology if the sole aim of the research was to understand the meaning of mICT use by people with mood disorders. However, the methodology is less effective when used for understanding social processes, the significance people attach to actions and for generating theory (Smith, 2009). As the main aims were to understand meaning, social processes and to gain a conceptual and theoretical understanding of how mICTs are used and how they fit into people's lives the methodology was rejected.

Grounded theory

The grounded theory methodology involves the gradual identification and integration of categories of meaning from the data, and the identification of relationships between them (Spencer et al., 2014; Willig, 2013). Grounded theory as method, therefore, provides guidelines on how to identify, link and establish relationships between categories (Willig, 2013). Grounded theory as theory is the culmination of the analytical process, the end result being the creation of theory with an explanatory framework to understand the phenomenon being researched.

Grounded theory therefore, tries to:

> *(a) determine how individuals derive meaning (i.e. meaning from experienced objects, events and situation), (b) describe those objects, events and situations, and (c) describe how these meanings guide individual and/or group behaviours, actions and their experiences of the consequences of these actions.* (Cummings and Borycki, 2011, p. 287)

As a result, theory can be developed to conceptualise the underlying social and psychological processes within a grounded field, or, less commonly, the development of formal theory across grounded domains (Charmaz, 2014). Grounded theory, therefore, was assessed as being the methodology that would come closest to fulfilling the aim of the PhD, and, as a result, was chosen for the study. Grounded theory is an inductive approach, which holds the potential to begin to fill the gap in the research being studied and to provide a theoretical platform for further research to be grounded upon.

Development of Grounded Theory as a research approach

Classical Grounded Theory – Glaser and Strauss

First developed as a methodology by sociologists, the theoretical origins of grounded theory (GT) can be traced back to Mead (1934) and his work on symbolic interactionalism. The term, grounded theory, as we know it today, was first used in the 1960s by Glaser and Strauss, who were based at the University of California (Glaser and Strauss, 1967). Glaser's background was in positivism, a philosophical position that understands behaviour to be influenced by external stimuli, and, as a result, can be observed and measured using quantitative research (Engward, 2013). Strauss' background was in Pragmatism, which informed symbolic interactionalism, a philosophical position that asserts that people develop a sense of self through interaction with others (Cummings and Borycki, 2011). As symbolic interactionalism developed

through the course of the late 1960s, the concept that meaning is co-created between objects, people and/or groups was adopted. People, objects and the meaning created, are continually being affected by their interaction with the environment and others, which in turn, affect the interpretation and meaning ascribed to the objects through language and communication (Charmaz, 2014).

Strauss and Corbin

This approach to GT saw a split develop between the now-termed 'Classical' approach held by Glaser (Glaser and Strauss, 1967) and a newer, more structured approach with technical procedures, developed by Strauss and Corbin (Corbin and Strauss, 2008). With the new approach to GT came different terminology and a framework to support and guide analysis. The coding of data consists of two main phases: open coding or line-by-line coding, and can be either focused or axial coding (Corbin and Strauss, 2008). Open coding breaks the data apart, deriving and developing concepts for each word, sentence or segment of data. This process creates the basic descriptive codes, forming the beginning of meaning from the data (Corbin and Strauss, 2008). Axial coding uses frequently appearing initial codes to crosscut and relate concepts to each other, allowing the sorting of large amounts of data so that categories can emerge (Cummings and Borycki, 2011). The coding process is facilitated by the use of a constant comparative technique similar to Classical GT, which involved the comparison of incidences for similarities and differences between emerging categories (Cummings and Borycki, 2011; Strauss and Corbin, 2008; Willig, 2013). Following on from coding the data, the next stage of analysis involves grouping together occurrences, events and processes that share similar features and characteristics to form categories (Willig, 2013). Categories are used to form descriptive labels and, as the analysis progresses, categories will become more analytical and interpretative in nature (Willig, 2013). Making comparisons within a category to identify subcategories and between categories allows for the full diversity and complexity of the data to be explored and realised (Willig, 2013). Ultimately, categories will become linked and integrated, capturing the full range of variation in an emergent theory (Willig, 2013).

Constructivist – Charmaz

From the early 1990s and onwards, researchers began to develop grounded theory methodology and diverged from the positivistic elements in the work of both Glaser and Strauss (1967) and Strauss and Corbin (2008) towards a constructivist approach, which

favoured their ontological and epistemological stances (Bryant, 2002; Charmaz, 2014; Clarke, 2003). The constructivist approach, developed by Charmaz (1983, 2000, 2002), adopted the emergent, comparative, inductive and open-ended approach of classical GT, the iterative logic emphasised by the teachings of Strauss, and the focus on meaning and action in the pragmatist tradition (Charmaz, 2014).

> *Researchers can use grounded theory strategies without endorsing mid-century assumptions of an objective external reality, a passive, neutral observer, or a detached, narrow empiricism. If, instead, we start with the assumption that social reality is multiple, processual, and constructed, then we must take the researcher's position, privileges, perspective, and interactions into account as an inherent part of the research reality. It, too, is a construction. Research acts are not given; they are constructed. Viewing the research as constructed rather than discovered fosters researchers' reflexivity about their actions and decisions.* (Charmaz, 2014, p. 13)

Therefore, due to the epistemological foundations of constructivist GT, and as discussed earlier, it sat closest to my own epistemological beliefs, and, as a result, was chosen as the methodology most suited for the empirical study.

Constructivist Grounded Theory

Theoretical underpinnings

Charmaz's constructivist approach to GT embraces the involvement and subjectivity of the researcher in the construction and interpretation of data, a move away from the social constructionist stances of the 1980s and 1990s (Charmaz, 2014). Learning and knowing is viewed as being embedded in social life (Charmaz, 2014) and her work was influenced by, and corresponds closely with, that of Vygotsky (1962) whom stressed interaction, social contexts sharing viewpoints and interpretative understandings. CGT offers flexibility in approach and shy's away from more formulaic or structured approaches to GT with subjectivity being viewed as inseparable from social existence, where grounded theorists:

1. *Conduct data collection and analysis simultaneously in an iterative process*
2. *Analyse actions and processes rather than themes and structure*
3. *Use comparative methods*
4. *Draw on data (e.g. narratives and descriptions) in service of developing new conceptual categories*
5. *Develop inductive abstract analytic categories through systematic data analysis*
6. *Emphasize theory construction rather than description or application of current theories*

7.   *Engage in theoretical sampling*
8.   *Search for variation in the studied categories or process*
9.   *Pursue developing a category rather than covering a specific empirical topic.* (Charmaz, 2014, p. 15)

Methodological considerations

There are questions and challenges to be considered and faced when using GT as a research methodology. A common question in the field is whether a priori theoretical knowledge should be set aside prior to the coding of data. This usually presents itself in the form of whether to delay the literature review until the later stages or after the completion of the data analysis (Cummings and Borycki, 2011).

Glaser and Strauss (1967) were firmly of the belief that the literature review should be delayed until after data collection, citing the need to allow categories to emerge from the data freely, uninfluenced by hypotheses and their extant theoretical frameworks (Dunne, 2011). The following decades saw some loosening of terms within this viewpoint, particularly by Strauss, who, together with Corbin, came to view the early review of relevant literature as necessary. However, Glaser remained fixed to the position of delaying the literature review and this was one of the main contributing factors to her eventual split from Strauss (Dunne, 2011). Essentially, delaying the literature review was thought to minimise the perceived potential of being 'contaminated' by existing ideas and theories, a position which held support from others in the field (McCallin, 2003; Nathaniel, 2006).

There are a number of cogent arguments for holding the opposing position, that of familiarising oneself with the relevant literature before data analysis. One of the agreed strengths of GT in the literature, and one of the reasons it was chosen as a methodology for this study, was that it is deemed an effective research methodology for areas where little research has been undertaken and there is a scarcity of knowledge (Payne, 2007). However, following this line of thought, it is questionable how one would become aware of such a lack of research and knowledge in a given area without familiarising oneself with the literature. From a practical, doctoral student perspective, withholding the literature review until data collection and analysis has begun can be fraught with difficulties. The doctoral student is reliant upon undertaking an early literature review, as this allows for their progression through institutional assessment points and to gain the ethical approval required before the empirical study component of their PhD can commence.

This study has attempted to tack a middle ground, cognizant of both positions, and is positioned within the belief that:

> *The open-mindedness of the researcher should not be mistaken for the empty mindedness of the researcher who is not adequately steeped in the research traditions of a discipline. It is after all, not very clever to rediscover the wheel, and the student or researcher who is ignorant of the relevant literature is always in danger of doing the equivalent.* (Coffey, 1996, p. 157)

Constructivist GT (CGT), as discussed earlier, considers the researcher to be part of the research process and not a separate object, apart from the data with no effect upon the study. The CGT researcher, instead of trying to separate themselves from their a priori theoretical knowledge, focuses upon not being restricted by their knowledge, and endeavours to examine their current assumptions or any preconceived ideas that they may have inadvertently imposed upon the data (Charmaz, 2014). For the purposes of this empirical study, the use of the constant comparative method, memo writing, and the keeping of a methodological journal to facilitate reflective and analytical thinking and promote reflexivity, aided the process.

This section of the methodology chapter has conveyed my own ontological and epistemological stance and how it guided the study, it has provided a summary of the variety of methodological approaches that could have been adopted to answer the research questions, provided a rationale for choosing grounded theory, and, in particular, constructivist grounded theory (CGT) above other methodologies, and finally, presented CGT in detail. It also discussed some of the methodological challenges faced through using GT and why it was the favoured choice for ICT research. The chapter continues with the methods section below.

Methods

Study design

The study used a qualitative approach, incorporating in-depth, semi-structured interviews with patients, and health and social care professionals, over a period of approximately 12 months. In-depth, semi-structured interviews were undertaken with people experiencing mood disorders to explore their mICT usage. Interviews formed the basis of data collection activities with participants. In-depth, semi-structured interviews were undertaken with health professionals from specialist and secondary care mental health services, to gain an understanding of their perspectives regarding the use of mICTs by

both them, and their patients with mood disorders. Interviews formed the basis of data collection activities with mental health care professionals. The data collection period was from April 2015 to March 2016.

Outcomes

Primary Outcomes

The primary outcomes included a theory of how mICTs are incorporated into the lives of people living with mood disorders, explicating and understanding its meaning, use, and the role that the technology plays in their everyday lives, and, more specifically, in the management of their long-term condition.

Secondary Outcomes

An understanding of the meaning, use and role that mobile technology has for mental health and social care professionals in the management of patients with mood disorders.

Data management

Sampling process

A practical, maximum-variance sampling approach was used in the first instance to gather data from theoretically relevant categories. Patients with mood disorders who used mICTs were purposefully chosen to maximise the opportunities to gather data across the identified variables. Thereafter, theoretical sampling was used to refine concepts and categories. Theoretical sampling is a method of data collection and a way of sampling data that has already been collected for analysis (Strauss and Corbin, 2008).

Study population

The study population was recruited from NHS Tayside, General Adult Psychiatry Services. A purposeful, maximum variation sampling strategy was used (Coyne, 1997; Strauss and Corbin, 2008). This aimed to sample a heterogeneous group with respect to different types of mood disorders, categories of age, socio-economic status, localities and the nature of their mICT use.

Number of participants

A selective sampling framework (Table 10) was used based on conceptual criteria developed from the systematic review and meta-synthesis completed by the researcher (Fulford et al., 2016). It was proposed that a maximum of 30 patients with mood disorders

who use mICTs were recruited for the study, along with 10 health professionals from NHS Tayside, General Adult Psychiatry Services. As discussed in the previous section, the chosen methodology for answering the research questions was Constructivist Grounded Theory. The major concern from using Grounded Theory was to develop a new, contextualised theory from the data provided by the participants. Data collection and analysis continued until theoretical saturation had been achieved. The sample size therefore was an estimate by which sufficient cases would be provided to allow for a theory to emerge.

Table 10: Maximum variance sampling strategy

Sample matrix							
Age	18-25		26-55		56+		**Totals**
Depression type	*M*	*F*	*M*	*F*	*M*	*F*	
Moderate	3	6	5	7	1	1	23
Severe and/or enduring	-	1	1	2	1	2	7
Household income	**Quotas**		**Quotas**		**Quotas**		
£50,000-£70,000	1		2		0		3
£36,000-£50,000	1		2		1		4
£26,000-£35,000	2		4		1		7
£15,000-£25,000	3		5		2		10
<£15,000	3		2		1		6
Area	**Quotas**		**Quotas**		**Quotas**		
City	4		7		2		13
Rural	6		8		3		17
Totals	10		15		5		30

Inclusion/exclusion criteria

The inclusion and exclusion criteria for patients and mental health/social care professionals are set out in Tables 11 and 12 below.

Table 11: Patient inclusion criteria

Inclusion criteria for patients	Inclusion criteria for mental health and social care professionals
Primary diagnosis of mood disorder with/or without secondary co-morbidities.	Mental health care professional who has provided support to a person diagnosed with depression.
Uses mICTs	Age ≥ 18
Age ≥ 18	Policy and procedures allows them to take part in research.
Agreeable to participate in a one-to-one interview with the researcher.	Capacity to provide written informed consent.
Can communicate in English.	
Capacity to provide written informed consent.	

Table 12: Patient exclusion criteria

Exclusion criteria for patients	Exclusion criteria for mental health care professionals
Not diagnosed with a mood disorder.	Unable to meet inclusion criteria
Age < 18	
Unable to meet inclusion criteria.	

Participant selection and enrolment

Identifying participants

Patient identification

The Clinical Directors of Angus, Dundee and Perth & Kinross acted as clinical collaborators in the first instance. Thereafter, mental health/social care professionals within NHS Tayside, General Adult Psychiatry Services identified patients within their service and/or individual caseloads who had a mood disorder and used mICTs. The initial approach to potential participants was through the mental health/social care professional involved in their care, that is to say, community mental health nurse, social worker,

occupational therapist, psychiatrist, support worker or psychologist. The mental health/social care professional would briefly outline the study and provide the patient with an invitation letter and information sheet. It was estimated that this would take no more than 5–10 minutes per patient. The information sheet would include a pre-paid reply slip that would be returned by the patient, thereby allowing the researcher to contact the patient if he/she was interested in study participation. If the patient agreed, the mental health/social care professional would alert the researcher to the patient's interest and their potential participation in the study.

Health and social care professional identification

The researcher met with specialist and secondary care mental health services in NHS Tayside and gave a presentation of the research study and invited mental health/social care professionals to take part. Copies of clinician information sheets were left with the services, which included the contact details of the researcher to allow the mental health/social care professional to contact the researcher if he/she was interested in participating in the study.

Study flow charts

The study flow charts, illustrated below, display the processes involved with the selection and recruitment of both patients and mental health/social care professionals.

Study flowchart for patients

Site Location: NHS Tayside, General Adult Psychiatry Services.

Type and length of study: 12 months, single centre, qualitative study.

Health and social care professionals identify patients who have mood disorder, use mICTs and fulfil the inclusion criteria.

Health and social care professionals will briefly discuss the study with patients, give them the patient information study sheet and ask them if they are interested in participating in the study and would like to speak with the researcher (5-10 minutes).

Not interested in the study. No further action.

If interested, the patient will return the pre-paid reply slip included with the information pack or with the help of the mental health care professional arrange an appointment with the researcher. The researcher will discuss the study and answer any questions the patient might have. The patient will be given at least 24 hours to think about whether they would like to take part. If they would still like to take part, a date, time and venue for the first interview will be arranged. Informed consent will be discussed and given to sign respectively (approximately a 60-minute interview).

Not willing to participate in the study. No further action.

Figure 3: Study flow chart for patients

Study flowchart for mental health and social care professionals

Site Location: NHS Tayside, General Adult Psychiatry Services.

Type and length of study: 12 months, single centre, qualitative study.

Researcher will meet with specialist and secondary mental health services in Angus and Dundee and give a presentation of his research. Researcher will leave copies of the clinician information study sheet and invite mental health care professionals to contact him if they wish to take part in his research (up to 5-10 minutes in length).

Not interested in the study. No further action.

Researcher will discuss the study with each interested mental health care professional and confirm they are interested in participating in the study. Researcher will arrange with the mental health care professional an interview at least 24 hours later to give them the opportunity to think about the study and ask further questions if necessary. Informed consent will be discussed and given to sign respectively (approximately a 60-minute interview).

Not willing to participate in the study. No further action.

Figure 4: Study flow chart for professionals

Obtaining consent

Patient recruitment

In order to work within ethical guidelines, the researcher was not the first point of contact for the patient in regards to the study. The initial approach to potential participants was made through the mental health/social care professional involved in their care during routine appointments. The mental health/social care professional briefly outlined the

study and provided them with an invitation letter, an information sheet and a reply slip, returnable directly to the research team, in a pre-paid envelop, if the patient was interested in participation. It was estimated that this would take no more than 5–10 minutes per patient. If the patient agreed, the mental health/social care professional would alert the researcher of the patient's interest and their potential participation in the study. After receiving a reply slip, the researcher contacted the patient to organise an appointment with the potential participant in order to provide more information about the study, answer any questions, and, if the patient agreed to participate, organise the time and location for the interview.

Health and social care professional recruitment

The researcher met with NHS Tayside, General Adult Psychiatry, specialist and secondary care mental health services and gave a presentation of his research and invited mental health and social care professionals to participate. Each service was left copies of clinician information sheets that included a reply slip and contact details should anyone wish to participate.

Screening for eligibility

Patient eligibility

On receiving a reply slip from a patient indicating they would like to receive further information and/or take part in the project, the researcher organised an appointment with the potential participant to provide more information about the study, answer any questions, and, if the patient agreed to participate, organise the time and location for the interview. Patients were provided with information packs and were given sufficient time (at least 24 hours) to consider and discuss with the researcher any issues prior to providing informed written consent. The written informed consent form was discussed with the patient, making sure that the patient understood the material before being given the form to sign. A copy of the signed patient informed consent sheet was given to the participant to keep. The researcher was an experienced mental health professional with extensive experience in seeking and obtaining consent.

Health and social care professional eligibility

If a mental health/social care professional wished to participate, the researcher organised an appointment with the potential participant in order to provide more information about

the study, answer any questions, and, if the mental health/social care professional agreed to participate, organise the time and location for the interview.

Ineligible and non-recruited participants

If the patient or mental health/social care professional did not meet the inclusion criteria for the study, this was explained to them, and they were thanked for the interest shown.

Withdrawal procedures

The researcher was aware that patients could find participating in the research difficult. Therefore, patient participants were able to withdraw at any time and, with their permission, any anonymised data collected up until that point would continue to be used in the study in a sensitive and confidential manner. If they did not agree, the data would be destroyed and not used in the study. Health professionals would also be able to withdraw at any time and, with their permission, the data collected up until that point would continue to be used in the study in a sensitive and confidential manner. If they did not agree, the data would be destroyed and not used in the study.

Study and safety assessments

If necessary, the participating patient's mental health care professional notified the researcher about whether there were any identified risks and these were managed accordingly. If the participating patient felt or became distressed during the interview, then the interview would be stopped immediately. A debriefing discussion would take place with the researcher. Then, with the participant's permission, the researcher would contact the health/social care professional involved with their care and provide them with a brief update. The participant would have the opportunity to discuss their feelings and/or concerns with their health/social care professional, and, if appropriate, seek further assistance from those involved in their care.

Data Collection

Semi-structured, in-depth interviews were conducted with all participants in a place of their choosing. For the patient, this was in their home or where they met with their mental health/social care professional, such as a health centre. For the mental health/social care professional, they were interviewed in their offices or another convenient location at their work.

Patient interviews

Patients were firstly given a participant information sheet and provided with the opportunity to ask questions before written informed consent was taken at a later date. The researcher conducted semi-structured, in-depth interviews with patients after their recruitment in a jointly agreed location. For the patient, this was their home or where they met with their health professional, such as a health centre, and for the mental health/social care professionals, their offices or another convenient location at their place of work. There was also the possibility of conducting interviews at the School of Nursing and Health Sciences, University of Dundee, however, this option was not utilised. The location in which the interview would take place was organised at the time of recruitment and whilst arranging the first interview. A topic guide was used for the interviews, informed by the results of the systematic review completed by Fulford et al. (2016). Interviews were recorded by digital recorder with participants' consent and subsequently transcribed verbatim.

Health and social care professional interviews

Mental health/social care professionals were given a clinician information sheet and were provided with the opportunity to ask questions. The researcher conducted semi-structured, in-depth interviews with mental health/social care professionals after recruitment and in a place of their own choosing. This was organised at the time of recruitment and whilst arranging the first interview. A topic guide, informed by the results of a systematic review by Fulford et al. (2016), was used for the interviews. Interviews were recorded by digital recorder with participants' consent and subsequently transcribed verbatim.

Demographic data

Demographic data were collected via the patient. This included information on age, gender, severity of mood disorder, and mICT use.

Data Management System

The computer-assisted qualitative data analysis software (CAQDAS), NVivo10, was used for data management purposes. The software provided a digital, single storage area for information, such as transcriptions, coding, memos and demographic data. Due to the digital nature of the information, sharing the work with the researcher's supervisory team was straightforward, facilitating transparency and rigor as any issues could be viewed and discussed collectively until resolved.

Study management and oversight arrangements

Study management group

The study was co-ordinated by a Study Management Group, consisting of the grant holder (CI), co-investigators and the principal investigator.

Study management

The Principle Investigator (HF) oversaw the study and was accountable to the CI (SMac). The Principle Investigator was responsible for checking the CRFs for completeness, plausibility and consistency. However, this remained the overall responsibility of the CI. The CI or a delegated member of the study team resolved any queries.

Inspection of records

The CI, PI and all institutions involved in the study permitted study-related monitoring, audits, and REC review. The CI agreed to allow the Sponsor, or representatives of the Sponsor, direct access to all study records and source documentation.

Good clinical practice

The researcher completed a study course on Good Clinical Practice offered by NHS East of Scotland Research Ethics Service, Ninewells Hospital, Dundee, prior to commencing the empirical component of his doctoral studies.

Ethical conduct of study

The study was conducted in accordance with the principles of good clinical practice (GCP). In addition to Sponsorship approval, a favorable ethical opinion was obtained from the appropriate REC, and appropriate NHS R&D approval was obtained prior to the commencement of the study.

Confidentiality

All evaluation forms, reports, and other records were identified in a manner designed to maintain participant confidentiality. All records were kept in a secure storage area with access limited to study staff and sponsors only. Clinical information was not released without the written permission of the participant, except as necessary for monitoring and auditing by the Sponsor or its representative. The CI and study staff involved with this study did not disclose or use, for any purpose other than performance of the study, any data, record, or other unpublished, confidential information disclosed to those individuals

for the purpose of the study. Prior written agreement from the Sponsor or its representative was required to be obtained for the disclosure of any said confidential information to other parties.

Data Protection

The PI and study staff involved with this study complied with the requirements of the Data Protection Act 1998 with regard to the collection, storage, processing and disclosure of personal information, and upheld the Act's core principles. The PI and study staff also adhered, if appropriate, to the current version of the NHS Scotland Code of Practice on Protecting Patient Confidentiality. Access to collated participant data was restricted to the PI and appropriate study staff. Computers used to collate the data had limited access measures via user names and passwords. Published results did not contain any personal data that could allow the identification of individual participants.

Insurance and Indemnity

The University of Dundee and NHS Tayside Health Board co-sponsored the study. For insurance purposes, University of Dundee obtained and held a policy of Public Liability Insurance for legal liabilities arising from the study. Tayside Health Board maintained its membership of the Clinical Negligence and Other Risks Insurance Scheme ("CNORIS"), which covered the legal liability of Tayside in relation to the study. Where the study involved University of Dundee staff undertaking clinical research on NHS patients, such staff held honorary contracts with Tayside Health Board, which meant that they had cover under Tayside's membership of the CNORIS scheme. For indemnity purposes, the co-sponsors did not provide study participants with indemnity in relation to participation in the study, but they did have insurance for legal liability as described above.

Study conduct responsibilities

Protocol amendments, deviations and breaches

The PI sought approval for any amendments to the Protocol or other study documents from the Sponsor, REC and NHS R&D Office. Amendments to the protocol or other study documents were not implemented without these approvals. In the event that the PI needed to deviate from the protocol, the nature of and reasons for the deviation were documented and submitted to the Sponsor. If this necessitated a subsequent protocol amendment, this was submitted to the Sponsor for approval and then to the appropriate REC and lead NHS

R&D Office for review and approval. In the event that a serious breach of GCP was suspected, this would have been reported to the Sponsor immediately using the form "Notification to Sponsor of Serious Breach or Serious Deviation".

Study record retention and transfer of data

All paper data were stored in a locked and secure location within University of Dundee and were only available for access by the researcher, his supervisors and the Sponsor for data analysis and audit purposes. Digital data in the form of interview recordings and transcriptions were stored in an encrypted and password-secured database. All anonymised data were archived and stored securely for 5 years after the completion of the project, in line with the policies of the University of Dundee.

End of study

The date of the end of the study was reported to the Sponsor and the REC within 90 days, and a summary report of the study was provided to the Sponsor and the REC within 1 year of its completion.

Reporting, publications and notifications of results

Authorship policy

Ownership of the data that arose from the study resides with the study team and their respective employers. On completion of the study, the study data were analysed and tabulated, and a clinical study report was submitted.

Publication

The clinical study report was used for publication and presentation at scientific meetings. Investigators held the right to publish the results of the study orally or in writing. Summaries of the results were made available to investigators for dissemination within their clinical areas (where appropriate and according to their discretion).

Peer review

The project was in partial fulfilment of a PhD in nursing and was examined through Viva Voce examination. The researcher's work was examined and peer reviewed by an internal examiner from the University of Dundee and an external examiner from the University of Stirling.

The methods used within the empirical study were selected to complement the chosen methodology and fit within the local, and national, NHS Ethics and R&D guidelines. Of utmost concern was the wellbeing of the participants throughout the lifespan of the study. Particular attention was placed upon the recruitment and interview procedures to lessen any potential for inconvenience. The study was completed within the agreed timeframe.

Grounded theory data analysis

Data from patients and health and social care professionals were analysed jointly and concurrently in accordance with CGT methodology (Charmaz, 2014). Participants within the in-depth primary study, both patients and health and social care professionals, were viewed as equal in terms of the potential relevancy and richness of data provision. This approach created theoretical categories that may have been missed or not fully explored if data were analysed separately and constant comparative methods were not employed. By undertaking a joint analysis, the theory encapsulated all participant data.

The analytic process started immediately after each interview with the researcher using memos to capture his initial thoughts regarding the data and to highlight potentially important areas of interest. The in-depth study utilised concurrent interviewing, transcribing, analysing and theorising. To manage this process, interviews were completed in batches; the first batch comprised 11 participants, followed by a further five batches of five participants each. After completing the data analysis for the first batch of interviews, there was a requirement to assess the emergent theoretical categories. To facilitate this, the first batch was theoretically sampled to explore the properties and dimensions of the emergent conceptual and analytical framework and to verify its resonance with the data. Coding portrayed the meaning construed from the data; resonating though open, focused, and higher-ordered constructs as coding became increasingly analytical and conceptual. All existing codes were subsumed into the conceptual and analytical framework with no new categories or focused codes emerging from the data. The first batch, therefore, provided an analytical framework to guide future interview questions and theoretical sampling. The patient and professional datasets were analysed concurrently and their interpretations were integrated into the theory. Figure 5 provides an example of part of the analytical framework, highlighting open and focused codes, categories and theoretical categories. A comprehensive illustration of the data analysis process, incorporating an interview transcript and coding examples, is provided in Appendices 6 and 7. The steps taken during the analysis stage of the in-depth study

are explicated below, detailing; open coding, focused coding, comparative methods, memo writing, theoretical sampling, saturation and sorting, and the evaluation of the theory.

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│ Outsourcing of needs │  │ Management of needs │  │ Disconnection of needs │
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                    │ Duality of engagement │
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│ Sense of attachment │──│ Social opportunities │──│ Survival tool │
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Theoretical categories

Categories

- Finding keeping well adaptions through mICTs
- Information gathering
- Mood and emotional regulation

- Gaming for mood
- Meditation, mindfulness and yoga
- Self-care
- Personal organiser

Figure 5: Coding categories

Open Coding

Coding forms a relationship with data, further enhancing the relationship created with participants; it is the process where segments of data are named and labelled, thereby concurrently categorising, summarising and accounting for each segment of data (Charmaz, 2014). Grounded theory coding facilitates a move from concrete descriptive statements in the data to analytical and conceptual understandings of statements, stories and observations. Coding provides the tools to examine, sort and synthesise the materials used to capture data, whether they are interview transcripts, field-notes or other documents. Examining the data means pulling them apart to see how they are composed and constructed, creating codes to explain behaviours, processes, and meaning, and explicating their evolution (Charmaz, 2014). Coding provides the link between gathering data and the creation of a theory to explain the data. Coding defines what is occurring in the data and begins the process of meaning-making, which directs further data-gathering:

> *By careful attending to coding, you begin weaving two major threads in the fabric of grounded theory: generalizable theoretical statements that transcend specific times and places and contextual analyses of actions and events.* (Charmaz, 2014, p. 113)

Grounded theory coding creates an analytic frame, facilitating analysis by connecting segments of data with the analytic abstractions placed upon them. Open coding is the process by which every word, line or segment of data is coded. Conducting initial coding involves drilling into the data looking for analytic leads to follow with further data collection and analysis. During the initial stages, coding is usually frequent, as the data opens up and becomes defined and labelled. Remaining open and committed to all possible theoretical directions suggested by the interrogation of the data is an important goal of initial coding (Charmaz, 2014). Initial coding remains close to the data, scrutinising for actions rather than applying a priori categories or types of people in order to focus on what is happening in the data and allowing for the generation of new ideas. Remaining close to the data can also help to determine gaps where more data are required to explicate emergent theory. Initial codes are provisional, they can be adapted to fit with the data in order to best capture and distil the actions and meaning that are occurring. Grounded theorists:

> *Aim to code for possibilities suggested by the data rather than ensuring complete accuracy of the data.* (Charmaz, 2014, p. 120).

The researcher used a protocol for coding created by Charmaz (2014, p. 120): "remain open; stay close to the data, keep your codes simple and precise, construct short codes, preserve actions, compare data with data and move quickly through the data".

Focused Coding

Following on from the open coding of the data, the focused coding stage of the analysis involves grouping together occurrences, events and processes that share similar features and characteristics to form categories (Willig, 2013). Categories are initially used to form descriptive labels and, as the analysis progresses, categories become more analytical and interpretative in nature (Willig, 2013). Comparison within a category to identify subcategories and between categories allow for the full diversity and complexity of data to be explored and realised (Willig, 2013). Ultimately, categories become linked and integrated capturing the full variation in an emergent theory (Willig, 2013).

Comparative methods

The comparative stage of coding is a process carried out in the analytical procedures to create categories. In order to do so, the researcher must be immersed within the data, thereby embedding the narrative of the participants within the final product. As discussed above, coding consists of two main phases: open coding and focused coding. Open coding breaks the data apart, deriving and developing concepts for each word, sentence or segment of data. This process creates the basic descriptive codes, forming the beginning of meaning from the data. Focused coding uses frequently appearing open codes to crosscut and relate concepts to each other, allowing the sorting of large amounts of data so that categories can emerge (Cummings and Borycki, 2011). The coding process is facilitated by the use of a constant comparative technique. This technique involves the comparison of incidences for similarities and differences between emerging categories (Cummings and Borycki, 2011; Strauss and Corbin, 2008; Willig, 2013). Essentially, initial codes are compared with other initial codes before being compared to emerging focused codes, and then the focused codes are compared with other focused codes before being compared to categories, then categories with other categories, and then theoretical categories compared with other theoretical categories. This process of constant comparison spanning open coding to theoretical categories continues, ending when theoretical saturation occurs, and the data are transformed to as conceptual a level as possible and the emergent grounded theory is fully formed.

Memo-writing

Memo-writing is an important part of GT as it helps to organise and trace the development of one's thinking and theory construction (Glaser and Strauss, 1967). During coding and constant comparison, memos can be written to note down thoughts and insights in regards to the data (Engward, 2013). These observations form the genesis of patterns in and between codes and their relationships with one another and are captured in the form of memos. Memos have four purposes:

> *First, the ideas expressed raise the data to a conceptual level; second, memos encourage the sorting and reworking of ideas; third, a catalogue of memos is created which serves as a source for writing up theory; and fourth, memos are written to be easily organised.* (Engward, 2013, p. 39)

Table 13 highlights the use of memos within the in-depth study and the transition from the initial descriptive and tentative inquiry to a more defined articulation of coding relationships and theoretical development as the data analysis progressed.

Table 13: Memo example

Memo – The digital disconnect (1) 25/07/2015
It appears that people with depression who use services and the health professionals who deliver services appear to want similar things from mICTs however, at present there is a disconnect. Patients are using mICTs in their daily lives in a variety of ways, one of which is to support their depression. MICTs provide patients with choice and control. They can choose the medium of communication i.e. phone, text, instant message, video-chat, email etc., and importantly, decide whether they wish to communicate at any given time. As an example, a CMHN recommended his patient use a relaxation CD however the patient was already finding apps to use for himself to help with sleep and relaxation. It was as if the patients were moving faster and further ahead with technology on their own, leaving their professionals behind. Patients on the whole see advantages of bringing mICTs into the therapeutic relationship and often see them as the preferred communication method with services. Health professionals see the potential and value mICTs could add to patient care. The mobility of mICTs and their functionality to be able to access information independent of location is valuable. This holds the potential to deliver efficient service, reducing time patients have to wait for clinical decisions and outcomes. MICTs also hold the potential to release time for the professionals to attend to admin work on the move instead of relying on fix-based PCs. Tablet-pcs hold the potential to facilitate collaborative working due to the professional having digital copies of paper-work that could be worked on together whether in a patient's home or clinical setting. Whether or not a health professional incorporates or discusses mICTs with their patients is variable and appears dependent on the individual. This may be a reflection of the apparent lack of resources, training or support regarding mICTs by the Service as a whole. Also, there

is the view that patients would be unlikely to use mICTs for self-management unless prompted by a clinician, a view which directly counters patient perspectives.

Both patient and professional see the benefits of clients having digital copies of their work, care plans, risk assessments etc. From a patients' perspective this helps them keep on track and remember the work they're doing as short-term memory loss and reduced concentration are common issues faced by people with depression. Health professionals consider it to be advantageous for patients to have digital copies that can be worked on at home as it'll potentially expedite the therapeutic activities. Therefore, both patients and health professionals see potential in using mICTs individually and together as part of the recovery process but at present it does not happen. The main reasons given by health professionals are – a lack of up-to-date hardware (at present they are given mobile phones that can only phone and text) and beauracracy 'red-tape' whether due to data security concerns, patient confidentiality, cost, computer literacy or political will. For some health professionals there has been a massive change in the way professionals communicate with their clients for example, a professional who worked in the wards for many years felt it was quite positive to be able to text clients in the community. However there is an apparent disconnect in the use and perception of technology between the NHS and the patient, the Service provides basic mobile phones for their staff, and patients view the health professionals as way behind them in mICT use and liken them to being in the Stone Age of technology.

Meeting with a consultant psychiatrist he discussed a number of ways mICTs could enter the professional-patient relationship. Charlie's insights mirrored that of the patients in regards to how mICTs could be used as a way of communication between the service and patients, brought into the relationship and used as an aide when in an appointment. It appears that both patients and professionals see the opportunities mICTs can offer however, currently there are barriers hindering this happening – essentially a disconnect. Charlie also mentioned the potential dangers of online media.

Are people with mental health issues more prone to the detrimental aspects of mICTs? Questions arise: does the disconnect need bridged and if so, how?

Memo- The digital disconnect (2) 02/09/2015

Patients and professionals describe and are aware of a digital disconnect. Patients are using more advanced mICTs than professionals; they are finding their own way to use technology to help with depression. Professionals feel hindered by the basic functionality of their mICTs and have resorted to using their own personal smartphones for the betterment of their patients. There is a digital disconnect in terms of interconnectivity – the disparity in functionality between technology used by patients and professionals meaning lack of choice and control in communication options. A digital disconnect in incorporating mICTs into the therapeutic work between professional and patient. A digital disconnect in terms of where Services are now and where the professionals who work for the Service and the patients who are provided services see the potential mICTs can offer in improving care and treatment and the digital workplace.

Memo- The digital disconnect (3) 12/12/2015

The digital disconnect sat on its own as a sub-category beneath 'centrality through interconnectivity'. It had a clear relationship in regards to its effects on 'Management of needs' and its use as 'A third hand'. Arguably, humans' use of their hands has allowed them to evolve to where they are now; they are of such significance in our development. For patients to liken their relationships and use of mICTs as their 'third hand' was significant. It captured the importance mICTs had in her life, a multi-use tool essentially allowing her to do things. Whilst not 'two-pairs of hands', the smartphone gave her additional capabilities. Therefore, to explicate the breadth of this concept, 'the digital disconnect' metaphorically handcuffed 'a third hand'. The mICTs' full capabilities were not being harnessed due to the disconnect between the person with depression and the Services which support them. People were using mICTs in their lives however; the professionals and Services supporting them were lagging behind in terms of mobile technology use, understanding and incorporation into care.

Memos can also aid the reflective and reflexive processes within GT as they chart the ideas and thoughts of the researcher. In this research study, memo writing was used to record; a daily journal, methodological decision-making, supervision, and theory development. This facilitated transparency in decision-making and recorded the path taken throughout the 12 months of the empirical study and why certain routes were chosen in favour of others.

Theoretical sampling, saturation and sorting

Data collection and analysis would ideally continue until theoretical saturation had occurred. The researcher would know theoretical saturation had been achieved when no new categories emerged and no further variation within categories took place. Grounded theory involves the gradual identification and integration of categories of meaning from the data, and the identification of relationships between them (Spencer et al., 2014; Willig, 2013). As the generation of a theory is essentially never-ending, theoretical saturation can be seen as a goal rather than reality (Willig, 2013).

Data are analysed after each interview or in batches, informing the next interview and creating an iterative and reflective process while respecting the chosen methodological approach. The process of analysis involves coding the data before going on to categorise the data in order to form a rich explanatory framework. This process is described in more detail below. Grounded theory as method, therefore, provides guidelines on how to identify, link and establish relationships between categories (Willig, 2013). Grounded

theory, as theory, is the culmination of the analytical process, the end result being the creation of theory with an explanatory framework to understand the phenomenon being researched.

Evaluating Grounded Theory

How to establish and assess the credibility of a GT study has been widely discussed in the literature (Charmaz, 2014; Glaser and Strauss, 1967; Strauss and Corbin, 2008). The type of criteria developed for evaluating research depends on who created it and why. For example, in their seminal work, Glaser and Strauss (1967) stated that GT, whether grounded or formal, required four highly inter-related properties in order to possess practical applications:

> *Fitness: The theory must closely fit the grounded area in which it will be used. Understanding: The theory must be readily understandable by people concerned with this area. Generality: The theory must be sufficiently general to be applicable to a multitude of diverse daily situations within the grounded area, not to just a specific type of situation. Control: Theory must allow the user partial control over the structure and process of daily situations as they change through time.* (Glaser and Strauss, 1967, p. 237)

As this research project followed a constructivist GT approach, the criteria developed by Charmaz (2014) was used to guide the evaluation process, as set out below.

Credibility

How credible a study is, can be gauged using the following criteria: whether an intimate familiarity with the setting or topic has been achieved; whether the data are sufficient to merit the claims made; whether systematic comparisons between observations and categories have been made; whether categories developed cover a range of empirical observations; whether there are strong logical links between data and the arguments developed and the analysis undertaken; and, whether enough evidence has been provided for the reader to form an independent assessment and agree with the claims made (Charmaz, 2014).

Originality

How original a study is can be assessed upon the following criteria: whether categories are fresh, offering new insights; whether the analysis provides a new conceptualisation of the data; whether there is social and theoretical significance to the work; and, whether the GT challenges, refines, or extends current concepts, ideas and practices (Charmaz, 2014).

Resonance

How well a study resonates can be assessed on the following criteria: whether the categories display the fullness of the studied experiences; whether liminal and unstable taken-for-granted meanings were revealed; whether links between individual lives and larger collectives or institutions have been drawn when the data indicated; and, whether the GT makes sense to participants and others with similar experiences, offering them insights into their lives and world (Charmaz, 2014).

Usefulness

The usefulness of a study can be gauged upon the following criteria: whether the analysis offers people interpretations that people can make use of in their everyday lives; whether analytic categories provide any generic processes and, if so, examined for tacit implications; whether the analysis can facilitate further research in other grounded areas; and, whether the study contributes to knowledge and towards making a better world (Charmaz, 2014).

Data were analysed after each interview, informing the next and creating an iterative and reflective process, while respecting the chosen methodological approach. The process of analysis involved coding, then categorising the data to form a rich explanatory framework. This process is described in more detail below. The concurrent interviewing, transcribing and analysis, an integral aspect of GT methodology, was managed by using batches of participants.

Theoretical saturation

Data collection and analysis continued until theoretical saturation had occurred. The researcher knew that theoretical saturation had been achieved as no new categories emerged and no further variation within categories took place. As the generation of theory is essentially never-ending, theoretical saturation was viewed as being a goal, rather than reality (Willig, 2013).

Reflexivity

Qualitative inquiry is both subtle and complex, which is in part due to the presence of the researcher within and throughout the research (Doyle, 2013). Because of my particular political, social and cultural positioning in the world, during the in-depth primary study, I viewed myself as having a dynamic relationship with the research (Engward and Davis, 2015). As such, reflexivity is linked to the credibility, rigor and quality of qualitative

research, due to the influences that the researcher may exert over the research, both intentionally and unintentionally (Palaganas et al., 2017). In this study, reflexivity is defined as:

> *The researcher's scrutiny of the research experience, decisions, and interpretations in ways that bring him or her into the process. Reflexivity includes examining how the researcher's interests, positions, and assumptions influenced his or her inquiry. A reflexive stance informs how the researcher conducts his or her research, relates to the research participants, and represents them in written reports.* (Charmaz, 2014, p. 344)

Reflexivity does not necessarily prevent bias, instead, it provides a mechanism within a study for developing awareness in the researcher so that issues can be identified and the interpretation of participant data made more accurate (Pezalla, Pettigrew and Miller-Day, 2012). In my thesis, reflexivity was used for the purposes of data collection and data analysis in the in-depth primary study, with the Rogerian principles of empathy, transparency and unconditional positive regard used to create conversational spaces for interview (Rae and Green, 2016). I used my own empathic relationship skills when interviewing patients and professionals to establish rapport and help them to feel at ease. I was introduced to participants as a university student completing a doctoral degree. After the end of each interview, I completed reflexive memos detailing the interview process, and the methodological and theoretical development. The memos were completed to support me to identify bias and provide a record of my thought processes and their development. They were used post-interview for prompting debriefing sessions with my supervisors and for the theoretical sorting stage of theory development. I also kept a reflective journal where I highlighted how my decisions may have influenced the research process (Appendix 8).

Chapter summary

The methodological considerations were discussed in the first section of this chapter. My own ontological and epistemological stances were presented and their influence on methodological selection was discussed. A number of different methodologies were presented and assessed in relation to whether they were suitable for achieving the desired results of the empirical study. Grounded theory, and in particular, constructivist grounded theory, was chosen, and the rationales leading to this decision were presented to defend that decision. The methods section focused in detail upon the chosen research methods used to answer the study's research questions. Of importance were the ethical

considerations of the study, particularly the attention given to negating any potential impact upon participants through taking part. The recruitment and data analysis processes were discussed in detail, as were the procedures that were in place to end the study and store the data. The next chapter will present the findings of the in-depth primary study.

Chapter 4: Findings; recruitment results and theory

Introduction

This chapter reports the findings of the primary in-depth study. Whilst the participants were viewed as people first and foremost, in order to help the reader distinguish between participant groups and the data and theory related to them, I decided to refer to them by using the terms 'patient' and 'health and social care professional', respectively. The chapter begins by presenting the characteristics of participants in the form of brief vignettes, before highlighting the sampling quotas achieved and the demographic information relating to the participants. The in-depth study's theory and the main concern identified by all participants is briefly introduced, before providing evidence of how the theory's three theoretical categories; 'Outsourcing of needs', 'Management of needs', and 'Disconnection of needs', facilitate participants to resolve and process that main concern. The theoretical categories and their focused coding are explored, highlighting how they relate to one another, how they contrast with each other, and their respective relationships with the main concern. The participants' core variable and their main concern, 'Centrality; through praxis of interactivity', is then examined in detail. The theory presents a conceptual representation of the substantive area, the use of mICTs by patients and health and social care professionals. The large dataset of 36 interviews, approximately 350,000 words, provided me with a rich source of data to supplement his arguments. Participant quotes were carefully selected for their descriptive and illustrative properties to facilitate the exploration of the theory's concepts and categories. I do acknowledge that these are comprehensive, and at times, sizable, participant quotes. However, presenting specific data as exemplars of the conceptual development within the study provides both enhanced context to the reader, and provides evidence of the inductive and theoretical development of the theory.

Participant characteristics

Twenty-six patients were interviewed before theoretical saturation occurred, as detailed in the sampling table below (Table 14).

Table 14: Maximum variance sampling results

Age	18–25		26–55		56+		Totals
Gender	*M*	*F*	*M*	*F*	*M*	*F*	
Moderate to Severe and/or enduring mood disorder	0	3	9	13	1	0	26
Household income	Quotas		Quotas		Quotas		
£50,000–£70,000	0		2		0		2
£36,000–£50,000	0		1		0		1
£26,000–£35,000	0		1		0		1
£15,000–£25,000	0		3		0		3
<£15,000	3		15		1		19
Area	Quotas		Quotas		Quotas		
City	0		3		0		3
Semi-rural	3		17		0		20
Rural	0		2		1		3
Totals	**3**		**22**		**1**		**26**

Ten health/social care professionals were recruited across NHS Tayside's urban and rural localities and across the professions within the multi-disciplinary teams, as shown in Table 15.

Table 15: Professional sampling results

Professional	Grade/experience	Team locality	Total
Senior Nurse	Band 8+	Tayside	1
Community Mental Health Nurse	Band 5	Angus	1
Community Mental Health Nurse	Band 6	Angus	1
Community Mental Health Nurse	Band 7	Angus	1
Occupational Therapist	Band 8+	Dundee City	1
Psychiatrist	Consultant	Angus	1
Psychologist	Band 7	Angus	1
Service Manager	Band 8+	Angus	1
Social Care Officer	Senior	Perth City	1
Social worker/Mental Health Officer	Senior	Perth City	1
			10

At the end of each patient interview, demographic data were collected, which are presented in Table 16.

Table 16: Patient demographic data

Name	Age	Area	Gender	Household Income	Number of days per week using mobile device	Time spent on mobile device per day	Type of mobile device(s)
Adam	26–55	Semi-rural	Male	Less than £15,000	Everyday	1–2 hours	Mobile phone, smartphone, tablet PC
Alice	26–55	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Smartphone, laptop, tablet PC
Amy	26–55	Semi-rural	Female	Less than £15,000	Everyday	3–4 hours	Smartphone, laptop
Andrew	26–55	Semi-rural	Male	Less than £15,000	Everyday	1–2 hours	Smartphone, tablet PC
Beth	26–55	Semi-rural	Female	Less than £15,000	Everyday	1–2 hours	Smartphone
Brian	26–55	Semi-rural	Male	£36,000–£50,000	Everyday	4+ hours	Smartphone, laptop, tablet PC
Cal	26–55	Urban	Male	Less than £15,000	Everyday	3–4 hours	Smartphone, tablet PC
Candy	18–25	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Smartphone, laptop, tablet PC
Charlotte	26–55	Semi-rural	Female	£15,000–£25,000	Everyday	3–4 hours	Smartphone, laptop
Daniel	56+	Rural	Male	Less than £15,000	Everyday	3-4 hours	Smartphone, laptop, tablet PC
Douglas	26–55	Semi-rural	Male	£50,000–£70,000	Everyday	0–1 hours	Smartphone, laptop

Name	Age	Area	Gender	Household Income	Number of days per week using mobile device	Time spent on mobile device per day	Type of mobile device(s)
Gail	18–25	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Smartphone, tablet PC
Greig	26–55	Semi-rural	Male	Less than £15,000	Everyday	3–4 hours	Smartphone, laptop, tablet PC
Gwen	26–55	Urban	Female	Less than £15,000	Everyday	0–1 hours	Mobile phone, laptop, tablet PC
Jackie	26–55	Semi-rural	Female	£15,000–£25,000	Everyday	1–2 hours	Mobile phone, laptop
Janet	26–55	Rural	Female	£26,000–£35,000	Everyday	1–2 hours	Smartphone, tablet PC
Jeremy	26–55	Semi-rural	Male	Less than £15,000	Everyday	0–1 hours	Mobile phone
Kate	18–25	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Mobile phone, smartphone, laptop
Kelly	26–55	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Mobile phone, laptop, tablet PC
Lucy	26–55	Urban	Female	Less than £15,000	Everyday	4+ hours	Smartphone, laptop, tablet PC
Peter	26–55	Semi-rural	Male	Less than £15,000	Everyday	1–2 hours	Smartphone, laptop

Name	Age	Area	Gender	Household Income	Number of days per week using mobile device	Time spent on mobile device per day	Type of mobile device(s)
Sarah	26–55	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Smartphone, laptop
Susan	26–55	Rural	Female	£50,000-£70,000	Everyday	3–4 hours	Smartphone, laptop, tablet PC
Tricia	26–55	Semi-rural	Female	Less than £15,000	Everyday	4+ hours	Mobile phone, smartphone, laptop, tablet PC
Valery	26–55	Semi-rural	Female	£15,000-£25,000	Everyday	3–4 hours	Smartphone
William	26–55	Semi-rural	Male	Less than £15,000	Everyday	3–4 hours	Smartphone, tablet PC

Participant vignettes

The participants are introduced through vignettes to provide a snapshot of the person, their recovery from mood disorder, and their use of mICTs. They also provide a picture of the professionals, their experience, specialities and their thoughts regarding mICTs. Participants' quotes will also be used to explicate theory, and therefore, by being introduced to participants here first, the reader will hopefully gain a sense of context related to the person behind their words.

Patients

Adam

Adam was a man in his mid-thirties to early forties who had attained higher education qualifications and, at the time of his interview, was unemployed. He lived on his own and used a mobile phone, smartphone and tablet-pc, 1–2 hours, every day. Adam was the first person to be interviewed, in May 2015, and the interview stayed close to the topic-guide. Adam owned an Android smartphone and an iPad, and he did not use a laptop.

Brian

Brian lived with his partner, who also had mental health issues, and he used a smartphone, laptop and tablet, for more than 4 hours, every day. Brian mentioned that he hardly ever used his smartphone as a phone, similar to what other participants had said. Instead, he used it mostly to access the Internet and to use social media due to its ability to facilitate the access of information on the go. He used it to communicate with his fiancée on Facebook, and also to support her mental health issues.

Kate

Kate used her smartphone every day, and her laptop mainly at weekends. She used her smartphone to keep in contact with people, play games and listen to music. She explained that she would panic if she lost her phone. She felt she needed it; taking it with her everywhere, and that she relied upon it, whether to access information or knowing that she had a safety device to contact emergency services if required.

Tricia

Tricia used a mobile, smartphone, laptop and tablet, for over four hours, every day. Her interview took place at the end of May, 2016. She used quite a lot of mobile technology, including the latest iPhone, as she perceived her smartphone and her car were the only

things she had to herself. Her mICTs were important for being able to keep in touch with her children and gain access to the outside world as she did not like going outside.

Greig

Greig had a number of mICTs; a smartphone, tablet and laptop, and he also owned a PC. He felt that mICTs were here to stay, describing mICTs, especially his smartphone, as offering security, likening them to a shield, between him and the outside world. He also used his smartphone in varying degrees for support and to maintain his social networks and ties.

William

William used a smartphone and tablet-pc 3–4 hours every day. He had several long-term physical health conditions that he was managing along with recurrent severe depression that made getting out of the house difficult. Having a smartphone helped him to re-connect with friends he had at school through Facebook. He met a friend at a group run by the NHS and their smartphones had allowed them to stay in touch afterwards and to offer support to each other, either through text or Facebook.

Janet

Janet had bi-polar disorder, which was a relatively recent diagnosis for her. She used a smartphone and tablet, 1–2 hours, every day. Janet used her iPhone mainly when outside the house for listening to music when running and exercising. She used her iPad when at home, using it for shopping, yoga and meditation.

Candy

Candy used a smartphone, laptop and tablet for over four hours every day. She described her phone as being her life, likening it to having a third hand. Due to having depression and anxiety she found it hard to leave her house, so her smartphone was her 'portal' to the outside world. Her mobile was her only contact with people, as a landline would not be used because she would not be able to see who was calling. She suffered from feelings of loneliness due to living on her own and finding it difficult to leave her house. However, having a phone allowed her to have daily contact with people, something she felt she needed to maintain her well-being.

Jeremy

Jeremy had decided to use a basic mobile phone, stating that he was happy with that level of functionality. He held strong feelings about talking to people by telephone; this was, for him, a very difficult thing to do, and he tried to avoid having to do it, at what seemed like all costs. He explained that he felt under pressure when talking to people, it did not give him enough time to process what he was thinking into communication, and he would usually end up tongue-tied and, ultimately, hanging up the telephone. Because of this, he had learned that his preferred method of communication was through text message.

Jackie

Jackie used a mobile phone and laptop, for 1–2 hours every day. Jackie was interviewed mid-June, 2015. She used the basic features of her smartphone; texting and accessing the Internet the most. She mainly used the Internet for shopping; buying clothes online was easier, and she did not have to contend with all the people in shops. She went on Facebook and mainly viewed what was going on and posted sporadically. She felt that people did not portray who they were online, instead, it made them appear to have happy lives, even though she knew people were having affairs. She mentioned some downsides of mICTs, such as comparing herself to other 'normal' people. She would use her mobile to call her mum for support when feeling down.

Susan

Susan stated that she grew up with technology and, therefore, her IT literacy was at a good level. Susan gave information, which was similar to previous participants, regarding not liking to speak to people on the telephone, and mentioned that, unfortunately, Services communicated mainly through this medium. She felt that her use of mICTs had become embedded in her life and they had become incorporated into her lifestyle. Decisions regarding finance and cost affected her mobile technology use when she lived on her own with her two daughters and was in receipt of benefits. She bought a cheap tablet-PC through a birthday voucher and had to wait until she met her partner before she could afford a smartphone. She had to monitor how she used pay-as-you-go devices otherwise she would run out of money.

Cal

Cal was interviewed in mid-October, 2016, and he explained that he mainly used a smartphone. He had found a Chinese model that provided him with the functionality he needed, but which was much cheaper than the leading brands. He stated that the smartphone might have been a bit slower, but he accepted this, as the price was more important for him due to his circumstances. He was very reliant upon his mICTs; they had become part of his life and lifestyle. He found them to be central in his life, allowing him to maintain social ties, access information and news, and for his work. He would find it very difficult not to have them in his life. Cal stated that mICTs were integral to his life; they offered convenience and a way of keeping in touch. Without them, due to depression, he would have socialised with much fewer people.

Gail

Gail explained that she had a smartphone and a tablet and they were her life. She used them every day, sometimes for many hours, as she found it very difficult to leave her house. A lot of the time she preferred communicating with people in the digital, written form, instead of seeing people face-to-face, as she would often neglect her appearance and felt uncomfortable around others. She didn't have a landline as it was too expensive and, therefore, she relied on her smartphone for access to the Internet and would link her tablet to it. She used her smartphone for keeping in touch with people, either through text or Facebook.

Alice

Alice liked using Apple products and had an iPhone, iPad and MacBook Air. Due to a reduced memory as result of her mood disorder, she liked how her devices all synced with each other so that, whichever device she was using, she had access to everything. When she was having 'dark days' and feeling at her worst, she would not speak to anyone on the telephone, preferring to text people instead, or use her laptop to order shopping, so that she would not have to leave her house because she viewed it as her sanctuary. She preferred texting because it meant that she would not have to argue with people, as people were not there in person, and she had choice and control over who to respond to and when. She described it as her safety net.

Sarah

At time of her interview, Sarah's mood was quite low and she was experiencing suicidal thoughts. She had a smartphone and tablet. She used her mICTs to keep in touch with people. She used games for distraction. She did not use apps for her mood, instead, she had found ways to look after herself using other functions on the phone, such as the alarm, and accessing the Internet to check medication. She would have liked to have been able to contact Services through text, email and virtual chat. She could not see a life without mICTs.

Gwen

Gwen had been involved with mental health services for some time due to her mood disorder and had recently been discharged from Inpatient services. She could take or leave mICTs; she did not feel a strong attachment to them. She had a smartphone, but did not use all of its available functionality. She tended to use it for texting, mainly, and the occasional telephone call. She preferred using text compared to speaking on the phone, as it was easier. She felt that she did not use her phone to help look after herself. However, through questioning, it appeared that she used her phone for social support and was unaware she was using it in this way. She became aware of her use during the interview and agreed she was using it to attend to her social needs.

Peter

Peter described having had a mood disorder over a long time period of time. He owned a few pieces of mobile technology, some new and others not so new. At the time of his interview, he was tending to stick with his older smartphone and laptop, as he knew how to use them, but he did have newer mICTs at his disposal when he felt ready to learn how to use them. He tended to use his pay-as-you-go smartphone most of the time for email and social media. He used his laptop for more creative purposes, such as writing music, photography and art, but had not used it in this way recently due to his mood. The creativity helped him to occupy his mind, feel satisfaction, and for distraction. Socio-economic decisions did influence his mICT use, especially when he had just broken up with his partner. He was only able to afford a basic mobile phone, which he found restrictive, because if he wanted to use the Internet, he would have to travel to his local library. This made him feel very cut off from society.

Beth

Beth was a woman who could take or leave mICTs as she was not attached to them. She had experienced a mood disorder for the past few years with it being particularly severe over the last year. She only had a smartphone, which she used to speak to her daughter overseas, through Facebook. She also spoke to her friends on Facebook via private messaging. She accessed Facebook approximately twice daily. She found it very difficult to process messages in varying forms, such as by written word (email/text) and voice (telephone). She preferred face-to-face communication so that she could see the non-verbal messages of the person, such as the movement of their lips, and so that she could ask them to repeat themselves if necessary.

Valery

Valery explained that she would feel lost without her smartphone. Her husband mostly used the PC and her eldest children had tablets. She would use her smartphone throughout the day to check Facebook but mainly used it at night when she had more time to herself. Mobile technology had not been discussed or offered to be used by the NHS or Angus Council. As such, purposefully using mICTs to help with her depression had never crossed her mind. She appeared open to the possibilities of using mICTs for self-management with advice from Services. She had to find ways herself to self-care, such as; meeting social needs on Facebook, and using gaming for distraction from unhelpful thoughts.

Lucy

Lucy had lived with a mood disorder for the past decade. She had received support from mental health services on and off throughout the period. She owned a smartphone and had use of a laptop and tablet at home. She described her smartphone as her life and said that losing it would be like losing a limb. Due to not being able to leave her house very often, she met her social needs through online social networking sites, such as Facebook. She used her mICTs to engage with her online social world. She described using her mICTs to hide from the world, using them to keep people at a distance and interact with them on her own terms. It appeared that she wanted to be alone physically, yet have social connections to others online because she did not want to feel alone emotionally. She needed to control her physical space and how she communicated with others, and mICTs provided this function for her.

Douglas

Douglas was interviewed at his home in early January, 2016. Douglas explained that, in terms of his work, mICTs were indispensable, as he could not do the type of work he did without them. In relation to his personal use of mICTs, he described it as a polar-opposite; he could take them or leave them, and usually only used them if he had a specific purpose or need to fulfil. He used mICTs in a purposeful manner, as a tool to get things done, such as searching for information on the Internet, or answering email, for example.

Kelly

Kelly had a laptop, smartphone and tablet. She tended to use her laptop the most, usually to go onto Facebook for distraction to help with her mood disorder and post- traumatic stress disorder. She played games on Facebook, which helped reduce the effects of flashbacks.

Andrew

Andrew was interviewed mid-January, 2016. He had experienced issues with his mood for a number of years. He used a smartphone and tablet. Due to being on benefits, the price of technology was an important factor for him when deciding what technology to buy. He did a lot of market research before deciding on a Chinese company called Huawei for both his phone and tablet. He wanted technology that was fast, and at the same time, affordable. The reason he owned and used technology was to stay in touch with his elderly mother and children. He also saw technology as something of a lifeline when his mental health deteriorated or when he relapsed and started drinking alcohol.

Charlotte

Charlotte was interviewed mid-January, 2016. She had experienced mood disorder for approximately 20 years. She had an iPhone and a laptop. She bought the laptop to allow her to do a university course, as all the material she needed, that is, her coursework, was online. She used her iPhone to help with her mood; she used apps to help her sleep, for self-esteem and mood issues. She also used her smartphone 'to communicate with the world' to help her feel less lonely through sites such as Facebook. She felt very attached to her phone; it was an important part of her life. If she lost it or could not use it, she would feel distraught. She used it to stay in contact with the outside world and to lessen feelings of loneliness that were associated with having depression. She thought her phone had played a massive role in her recovery.

Amy

Amy had spent time in hospital recently due to her mood disorder and associated anxiety. She used an iPhone 5S and a laptop, but mainly the iPhone. She used the smartphone to keep in contact with her mum and friends. She felt that it was important for her to feel connected and she felt very attached to her phone.

Daniel

Daniel was the last patient to be interviewed, in March, 2016. Daniel had been living with his mood disorder for a couple of years. He identified with the theory, explaining that he saw how his life and use of mICT was encapsulated within it.

Professionals

Bethany

Bethany had considerable experience in mental health nursing. Although she brought her own smartphone to work, she did not use it for clinical work, instead, she relied on the mobile phone provided by the NHS, which, she thought, lacked functionality. She did not actively discuss the topic of mICTs in the therapeutic relationship, citing lack of training and support from the NHS, which highlighted her lack of confidence. She saw an advantage of using mICTs as a communication device and for working on material with clients.

Charlie

Charlie had decided to use his own mICTs in his working role for the best interest of his patients, as the devices supplied by the NHS lacked functionality. He found the lack of broadband, Wi-Fi and 3G/4G particularly problematic in terms of getting work done; he found it to be a slow process and working from home would have been much quicker for him due to the access he had to his personal broadband services, which were faster. He did not think the NHS had designed software and systems well and that they were a barrier to patient care at times, that is to say, the lack of resources, duplication of paperwork, IT literacy issues, bureaucracy and a top-down management process.

Carrie

Carrie was a community mental health nurse with several years' experience of Inpatient and community work. She was enthusiastic in the way she talked about her work and her

care of patients. She had a work mobile phone but had also made the decision to use her own smartphone at work for the betterment of her patients.

Audrey

Audrey had worked for the Council for a number of years. She had been given a mobile phone when she joined and still used the same one as it had not broken, nor had she requested a new one. She thought she was going to get a Blackberry soon but had not been told why. Due to the basic functionality of her work phone she would use it either to phone or text clients. She stated that many clients did not like talking on their telephone, or face-to-face conversations, and that they preferred text messaging. She would sometimes receive text messages with more personal information than when having a 1:1 meeting. She felt it was especially important for people with mental health problems to be able to communicate and talk about how they were feeling. She said it was important to be able to offer people choice in how they communicated with Services, however, this choice was limited at present.

Josie

Josie explained that she only used a basic mobile phone for her work. She did not routinely share her mobile number with patients due to the fear of her contactability being misused. Thus, she would assess whether she felt she could give certain clients her number. She stated that she believed there was a protocol or policy saying work mobile numbers should not be shared with clients. She explained that certain instances might make her share her number with patients, for example, if someone was suicidal or found it difficult to get out and about. She stated that there was no guidance provided by NHS or Angus Council on how to incorporate mICTs into care to help people to look after themselves.

Jessica

Jessica was a psychologist and did not have access to mobile technology for her role, instead, she relied on PC and landline use. She did not discuss or incorporate mICTs into her discussions with patients.

Sharon

Sharon had worked as an occupational therapist for many years in mental health. Although she used mICTs a lot in her personal life, she did not use them as part of her

professional role. She had experienced negativity and criticism from senior management when trying to introduce mICTs into the workforce. Therefore, she no longer tried to change the culture she worked in regarding mICTs.

Jennifer

Jennifer worked as a senior mental health nurse and did not have access to any modern forms of mICT for her work, other than an old-style Nokia mobile which could text or telephone. Because of this, she used her personal iPhone when in the community to access information on the Internet and view websites. She used the information either for her own professional needs or to support her patients.

Brendan

Brendan worked as a senior manager and used a work smartphone and tablet. He was aware to some extent of the difficulties that his staff faced in terms of the functionality that their current mICTs offered them. He stated that there would possibly be some initiatives in the future to increase the mobility of professionals, including increasing the use of mICTs.

Kloe

Kloe worked as a senior nurse and was unaware and surprised that her staff did not have access to up-to-date mICTs and their reticence towards introducing them into clinical discussions.

Conceptual and theoretical findings of the in-depth primary study

The use of a constructivist grounded theory approach facilitated the data, in the form of participant transcriptions, to be transformed into an explanatory theory. The theory was grounded in the information and the details provided by participants when describing their experiences of using mICTs. The social processes, identified in the data, formed the main concern of participants - 'Centrality; through praxis of interconnectivity' and three theoretical categories – 'Outsourcing of needs', 'Disconnection of needs' and 'Management of needs'.

When using mICTs, the main concern and core social process for patients was 'Centrality; through praxis of interconnectivity' and can be defined as; the act of remaining central within the exchange of information and central to the attachment towards the technology. MICTs facilitated people to remain at the centre of their on and offline worlds through

managing their access to information. Their use of mICTs was also of central importance in terms of the feelings of attachment and importance they placed upon these objects. The main concern is achieved to a greater or lesser extent by how people attended to the three theoretical categories as described below.

'Outsourcing of needs' is defined as the process whereby people managed and mastered both the technology and the information which was made available to them. Once this was achieved, people could use their mICTs to complete activities online rather than in person.

'Management of needs' is defined as the process whereby people used their mICTs to find ways to help look after themselves. Both in general, but also specifically, as people recovering from mood disorders. People used their mICTs to find helpful ways of managing issues caused as a result of having a mood disorder.

'Disconnection of needs' is defined as the process whereby patients, and their health and social care professionals, had to accommodate the prospect of their needs not being fully met due to issues associated with mICT use. There was a clear lack of communication between professionals and patients when talking about their mICT use for self-management purposes. There were also issues with access to mICTs by professionals, and because of the lack of communication with their professionals, patients had to try and resolve their mICT issues alone. The in-depth primary study's theoretical framework is displayed in Table 17, and provides information on the number of participants whose individual data sources (patient (Pt) $n = 26$, professional (Prof) $n = 10$) created the framework.

Table 17: Theoretical framework

Centrality; through praxis of interconnectivity (Pt *n*=26 , Prof *n*=10)	Outsourcing of needs (Pt *n*=24 , Prof *n*=0)	The digital window (Pt *n*=23 , Prof *n*=0)	Digital filter (Pt *n*=19 , Prof *n*=0)
			Navigating and negotiating (Pt *n*=18 , Prof *n*=0)
	Disconnection of needs (Pt *n*=26 , Prof *n*=10)	The digital disconnect (Pt *n*= 26, Prof *n*=10)	Patient and professional perspectives (Pt *n*= 26, Prof *n*=10)
			Future design of services (Pt *n*= 26, Prof *n*=10)
	Management of needs (Pt *n*=25 , Prof *n*=0)	Duality of digital engagement (Pt *n*=23 , Prof *n*=0)	Social opportunities (Pt *n*=21 , Prof=0)
			Survival tool (Pt *n*=22 , Prof *n*=0)
			Sense of attachment (Pt *n*=26 , Prof *n*=0)

Centrality; through praxis of interconnectivity

Patients with mood disorders used their mICTs to stay central within their exchange of information and their feelings of attachment towards the technology, evidence of which is seen in how patients place them as having central importance in their lives. As such, the main concern for patients when using mICTs was 'Centrality; through praxis of

interconnectivity', the act of staying central through the interconnectivity that mICTs afforded them (Figure 6). This was achieved via managing their continuums of 'Outsourcing of needs', 'Management of needs' and 'Disconnection of needs'. Their relationships with mobile technology appeared to be on continua of use. At one end, these relationships were central in patients' lives; both in terms of their attachment to their mICTs, and also, their mICTs' ability to centre patients within their on-and-off line worlds. Evidence of this was demonstrated by how patients described having feelings of attachment towards them:

> *I feel quite attached to my phone. There's so much information about your life tied up in your phone. The two main things that I will always check that I've got is my purse and my phone and if either go missing it's like panic.* (Amy)

> *It's quite central to my life, I've allowed it to become quite central to my life. For everyday purchasing of things, downloading music, that sort of thing, so yeah, I would say it's fairly central to my life at the moment.* (Andrew)

> *I can't do without my phone I sleep with it under my pillow. Well it's like my friend, you know, it is my lifeline. It's like my pal, you know I'd be lost without my phone. I mean I lost it the other day and I didn't have a landline to phone my phone to see where it was so I was going mad in the house because I couldn't find my phone and I had to do without it for like half an hour and I felt like I was going to die because I didn't have my phone.* (Gail)

Also, mICTs enabled patients to locate themselves at the centre of their social sphere. 'The digital window' provided a mechanism which facilitated the patient to interact and manage the flow of information between the intrapersonal, the interpersonal, and wider society:

> *I use technology, it's easier to keep in touch. To keep in touch and to find, I don't buy newspapers, so I keep in touch with things online. I keep my brain stimulated by doing crosswords and things like that and games online. I do exercises, I've got arthritis and I do exercises online as well with my computer, my laptop.* (Alice)

> *You feel popular I suppose. I just don't like being alone. It's nice to be able to say something and somebody reply to you. I work in an office with other people but they're not really my friends. It's nice to be able to communicate with people that you like and you value their comments and you can have a laugh with.* (Brian)

> *You're kind of involved in everybody's life from a distance. Or you feel involved without being involved.* (Lucy)

Conversely, technology could be a small component in patients' lives, both in its importance and societal reach. Patients, at times, chose either not to use mICTs at all or to downgrade the functionality of the technology:

> *Probably because everybody else has got a phone you, you feel like you have to have one basically. It's not that important, not to me it's not, no. I don't think it would be that big an issue. We never had phones on the go, maybe say ten years ago, people just got on with it without mobile phones.* (Gwen)

This purposefully limited their access to interconnectivity, thereby removing them from a sense of information overload, lessening the biopsychosocial requirements of using the technology:

> *I choose to disengage with it. If I've, if I have episodes then I do disengage with it and occasionally I do get situations where I'm overwhelmed with the technology and I go back to the Stone Age. I usually get rid of the smartphone and I go back to a, a basic, two ninety-nine from the EE store. Sometimes I find that the technology can get too much for me and I sort of retreat from it.* (Andrew)

'Praxis of interconnectivity'; the act of being and feeling interconnected through mICTs, was an outcome of using mobile technology. Having an mICT allowed patients to be connected and interconnected, whether that was to family, friends, people, the Internet, being connected to their inner-feelings and emotions, retrieving information or gaining knowledge:

> *It [mICT] can be everything from distraction to just complete escapism. I used YouTube and things to learn how to knit so that has given me another hobby. I wouldn't have gone out to find people to learn, so you can. It's nice to say, 'Well get out and join a group,' and this and that. If you're feeling depressed you're not going to do it, you can say it all you like. But if you can do these things online, if you can find a virtual group online to discuss things. What you have then becomes important. When you are feeling better you can move out to where the people are. When you're not well it does keep you in the middle of things whilst you're still hiding away from everything. It is part of your day-to-day living, you reach for it.* (Susan)

MICTs enabled patients to connect with friends and family through email, telephone, video-chat, text message, instant messaging and social networking sites. Social support could be given and received. If required, mICTs offered immediacy to things, whether that was the retrieval of information on the Internet, or communication with others. Therefore, mICTs offered connectivity between self and society.
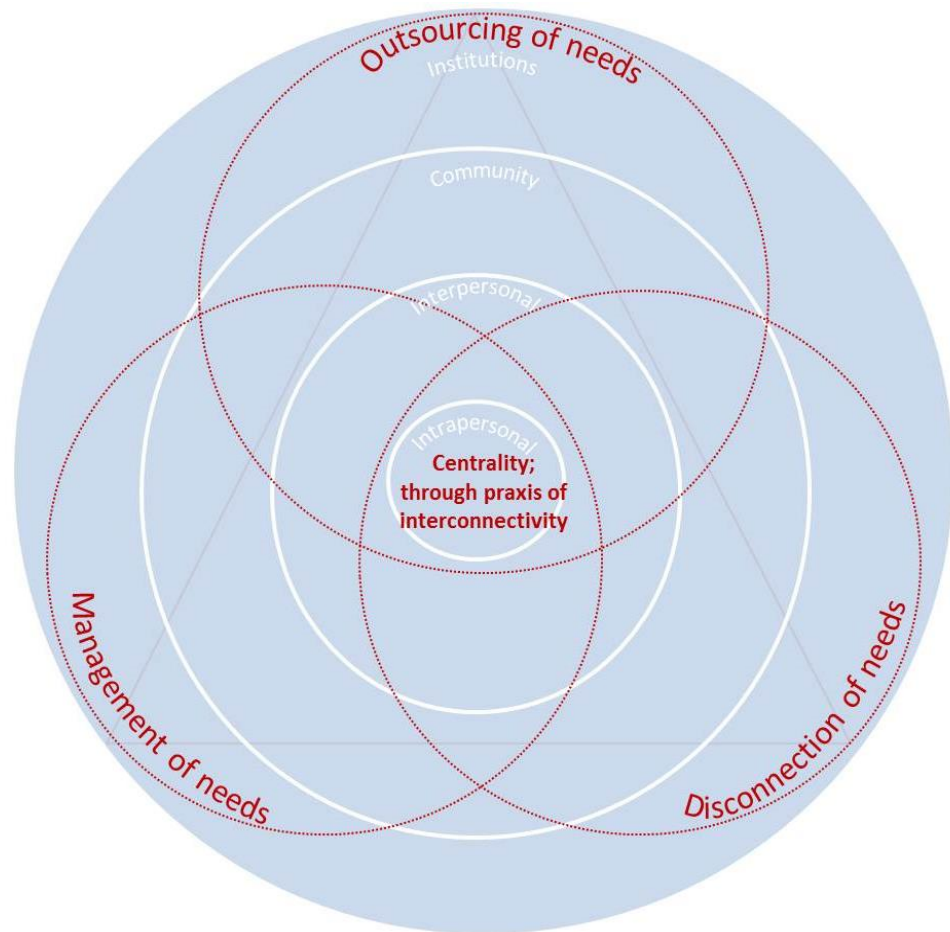
Figure 6: Model of theory

Patients had to learn new skills and practices, such as online etiquette, managing risks, and utilising the benefits that mICTs afforded them. Patients succeeded in this by managing their continuums of centrality in order to meet their needs, whether these were biological, psychological or social. Where patients were situated on their continua was not fixed, but rather, it changed; it ebbed and flowed as they engaged in their activities of daily living and recovery from mood disorders. As such, their centrality flexed via the praxis of interconnectivity; from remaining inward-looking within the intrapersonal with limited mICTS use, to achieving full centrality across socio-ecological domains and full use of their mICTs. The grounded theory approach helped understand how patients with mood disorders made use of their mICTs in their daily lives (macro-level understanding), and also, how they used mICTs specifically to facilitate their recovery from mood disorders (micro-level of understanding).

Outsourcing of needs

The theoretical category, 'Outsourcing of needs' (Table 18), highlights the processes whereby people were required to manage and master both the technology, and the through their use and access, the information available to them. After which time, MICTs could be used as a mechanism by patients to effectively, outsource their informational needs; such as using mICTs for self-management purposes (Management of needs) or for managing disruption or disconnection to their needs being met (Disconnection of needs).

Table 18: Outsourcing of needs

Outsourcing of needs			
The digital window			
Digital filter		Navigating and negotiating	
A safe space	Choice and control	Benefits and challenges of using mICTs	Personal factors and influence upon mICT use

Before the advent of mICTs, patients met their needs through interacting with the physical world around them. This may have included activities such as shopping in a supermarket, taking a book out from a library, going to their local bank to withdraw or transfer money, or going to a night club for dating. As mICTs became embedded within society there was a gradual transition to a blend of on-and-offline services. This provided patients with a medium to outsource their needs, whether they were biological, psychological or social. Outsourcing became an effective way to save costs by improving efficiency; for people with mood disorders, cost was associated with time and disruption to affect. Patients were no longer required to attend to their hierarchy of needs in person; instead, their mICTs facilitated a virtual meeting and marketplace for their domestic and commercial requirements:

> *I think I'm much more confident because I don't like speaking and I can do it through Facebook, I can do it through text, I can do it through a lot of other ways than actually having to pick up the phone, because I just wouldn't do it.* (Charlotte)

> *I live for my iPad. It doesn't really leave my side and I have an iPhone as well which I use. My contact with my family is through mobile technology. I use messenger every day for communicating with friends and talking to the kids. It's*

the most economical way of keeping in touch with family and friends. There's no cost involved to it other than setting up a wireless network. My iPhone and my iPad I use pretty much every hour of every day as a communications tool. I see them as both tools and entertainment. I download films, TV programmes on my laptop and drop them onto a hard drive, which I can then watch on my TV. I definitely use it for online shopping, in a way as an entertainment system as a games machine. I play simple games that, should we say, engage my brain, make me think because being unemployed right now having worked all my life I find I get mentally bored being in the house most of the day and so sitting and doing puzzle type games just keeps me mentally engaged and the iPad's great for that. Small games, things like that, I'm an avid jigsaw kind of person and I do electronic jigsaw puzzles now rather than millions of pieces on the table. I belong to a few groups, so I do quite a lot of reading on the iPad as well related to those sort of subjects. (Daniel)

The theoretical category, 'Outsourcing of needs', captured this relationship with mICTs and conceptualised the processes of managing on-and-offline needs. 'The digital window', with its sub-categories; 'Digital filter' and 'Navigating and negotiating', and their coding and interrelationships, are discussed in greater depth below.

The digital window

MICTs offered a metaphorical window into the patient's inner and outer worlds; 'The digital window' between one's intrapersonal and interpersonal self. This provided a mechanism for self-reflection and a tool for interacting with others on- or off-line. MICTs offered a protective window, a safety or buffer zone, where the patient could have choice and control over what came in and what went out in terms of; information, communication, socialisation and entertainment:

> *You use it for things like, you need to find out something for the kids' homework or something, it's handy to browse the Net and just get the answers for their maths homework and stuff like that. I use it just to catch up on the news because you tend to feel a bit cut off here. You're working in a small business but you're working at home so you don't really see people apart from maybe an odd day a week when you're out on site. Even then, when you're on site you might be on your own so you're not really coming in contact with a lot of people face-to-face so it's just a useful way of keeping in tabs with what's happening in the world.* (Douglas)

Patients' relationships with 'The digital window' appeared to be an active rather than a passive experience. The two-way flow of information through 'The digital window' provided patients with an opportunity to engage, and direct information, to influence and/or change behaviour.

Navigating and negotiating

Patients were 'Navigating and negotiating' how they used their mICTs, not only the hardware and software, but also the complex social phenomena and behaviours of others that the interconnectivity afforded them with:

> *I'm still checking my phone when I'll leave a meeting or just before I go into a meeting, just have a little look, but I feel more in control of it now. I think people can be too reliant on individuals, and too demanding, and people will say things that they would never actually say face-to-face or in the same room, there could be a lot of hurtful content. And I think what I've learned by taking a break from it, is that I need to take what I want from it. I don't need to feel caught up in it and available twenty-four seven, an advisor to someone, surrogate brother to someone. Because people have become quite attached and so, you've got to watch that you're not taken advantage of. I think everybody has their own needs and wants from it and that changes at times, but for me, it's knowing when to knock it on the head for a little while. When it starts to bother me it's time to step back from it a little bit.* (Peter)

Therefore, patients were required to manage the 'Benefits and challenges' of using mICTs with some evidently being more adept than others in this process.

Benefits of using mICTs

There appeared to be benefits associated with the functionality and usability of mICTs. Functional benefits of using mICTs included 'Accessibility, 'Connectivity' and 'Security'; due to their portability and interconnectivity to information:

> *It's access to information instantly. I routinely check the weather forecasts. I've just recently started taking photographs at horse shows at the weekends and selling them online so checking the forecast every day at least, praying for sunshine on a Saturday. It's there and available. If I'm out at a horse show taking pictures, I'm still in touch with my business, the admin end of my business.* (Cal)

As a theoretical category, mICTs offered 'Accessibility' due to their size, for example, the smartphone fitted in a pocket and could move with the patient, and a tablet fitted in a bag or handbag:

> *I just fits in your pocket and it's easy to take around with you and easy to access.* (Brian)

This meant that the hardware itself tended to be accessible, as it was usually within arm's reach, charged, and switched on. MICTs such as smartphones and tablets provided access to software, whether they were in-built apps such as calendars, calculators, email, or downloaded apps. They also provided access via web browsers to the Internet and,

therefore, access to information via websites and search engines. MICTs, therefore, provided a means to access and meet certain needs, whether these were basic needs (online shopping, organising finances), psychological needs (attending to relationships, accomplishing stages of recovery), or self-fulfilment needs (meditation, yoga, creativity):

> *It [smartphone] gives me an escape from the darkness, it's for a short time and it's just like a relief there's nobody pressurising you, you're not getting forced to do anything, you can just look, flick through the pictures.* (Alice)

> *You can filter your calls when I'm in different moods. The way I'm feeling there are certain people that I maybe can't always handle talking to, for instance, my mum. She's quite a strong woman quite a strong personality, knows her own mind and listening isn't always one of her strong points. The choice is there to answer the call or not. The phone is kind of in-between, it's my barrier.* (Greig)

> *You can find whatever you want immediately, you don't have to go trawling through papers and things.* (Brian)

Patients managed their finances, sought entertainment, checked and/or retrieved information, communicated and shopped through their use of mICTs:

> *I scan through the main pages. They've got these sale sites on Facebay, your local areas. People are selling their items on it like tables, chairs, beds, fridges, freezers, washing machines, games consoles, anything you can think of so if you're thinking, 'Oh I'm needing a new bed,' instead of going through the yellow pages looking for items, you can go onto these things on Facebook.* (Sarah)

What would have once been separate activities for patients, which required specific devices for different activities, and were carried out in different areas of the home, such as a hi-fi for music, a PC for computing and accessing the Internet, and a TV for entertainment, were now provided by mICTs, which combine these functions in one mobile device, essentially becoming entertainment platforms for patients. Smartphones and tablets enabled patients to listen to music, stream music, watch videos and live TV, and access the Internet:

> *I've got this phone and I've got a tablet but no television at home. This is probably my only way of looking out into the world apart from the radio. I'd say it's quite central to my life, I've allowed it to become quite central to my life. For everyday purchasing of things, downloading music, that sort of thing, I would say it's fairly central to my life at the moment.* (Andrew)

Patients searched out their own media to suit their needs instead of relying on mainstream outlets, increasing the range of information sources available to them across mediums:

> *I'll seek information on the Internet but I won't necessarily go to the same source or just one source. I also won't spend hours and hours and hours going to many, many sources. I'll maybe look at two or three sources of information and see whether they correlate with each other. Health information, mental health particularly, also physical health, I find it useful for that. I also understand that there's often a lot of misinformation so I understand not to believe everything I read, not to take it as always correct or applicable to me.* (Daniel)

> *I keep up on some news but I avoid the mainstream BBC. It's mostly blogs and stuff I guess. I use the iPad for that and again for Netflix and YouTube, which is kind of the video equivalent of blogs that I watch. I subscribe to a few channels I don't watch live broadcast TV. Everything I watch is either on YouTube or Netflix. I have a Chromecast dongle that plugs into the back of the TV so I can put stuff from the iPad or the phone onto the TV to watch.* (Adam)

For patients who found it difficult to leave their home or interact with others face-to-face, social media facilitated the meeting of their social needs. Patients managed their social capital either vicariously, through watching the online content of others, or personally, through direct contact:

> *Sometimes it's [smartphone] my only social contact during a day because I live geographically in a very quiet isolated place and so sometimes that can be my only contact with the outside world. I use my general social media account for several key areas, interests and humour which I find great. When you get involved in humour or when someone finds what you said funny it can be a real tonic to your health.* (Peter)

'Convenience' was an important factor for patients when using mICTs. MICTs had become convenient utilities for patients as they could be placed next to them on the sofa, their bedside table or in their pocket when outside. Their un-intrusive and location-independent features enabled patients to obtain a certain mastery over their environment in order to meet their needs:

> *Portability, it's in your pocket. PCs have basically nowadays become media-centres. People will have the tablet and sit in the armchair watching the TV, or the laptop or the mobile phone. They're for music, they're for film and homework and things like that. For the masses, they're entertainment centres, gaming, music, videos, all those sorts of things. PCs are the old technology, you can get laptops that work just as quickly, just as easily, that have the new solid state drives, graphics drives, with all the things they do. You don't need to have a corner of your room taken up by a tower, monitor, keyboard and desk.* (Greig)

Compared to desktop computing such as PCs, patients found mICTs to be more user-friendly. Their size, load-up time and intuitive interface made patients more likely to use them rather than switch on a PC and wait for it to power up:

> *Would I fire it up? No, I would still pick my iPad first I think, overall I would. I wouldn't go and fire it [PC] up or even switch the plug in the ground on at the desk. I would just grab my iPad and I'm off. Press a button and I'm away.* (Janet)

Patients chose to use mICTs as they offered the same functionality as PCs in a more user-friendly package. PCs had become slow and burdensome, whereas smartphones and tablets offered immediacy instead of waiting for a PC to boot up. MICTs were viewed by patients as being quick and effortless and an easier option to use in a world where the pace of life had increased. For patients who had difficulty telephoning people, mICTs offered an easier alternative, for example, through text, email or instant messaging. This transformed something that was potentially stressful, into something convenient, which was easy to use:

> *Normally if I'm on the phone I'll normally text people. Occasionally I'll Facetime with people like my sister and stuff but it's normally just text, I don't really phone anybody unless I have to. I've got set ring tones, I've got a set ring tone for my mum so I know when she's phoning. If I don't know the number on my screen I won't answer it, I normally do most of my communication through text or email. I very rarely do phone-calls.* (Kate)

Patients could share family areas due to the flexibility their mICTs provided in terms of their mobility, such as the living room, whilst maintaining a sense of privacy regarding the information they were accessing. This linked to the theme of 'Choice and control'; mICTs had become part of their lives and influenced their relationships with others, as patients could access information when, where and how they wanted through their mICTs:

> *If I was to leave my phone somewhere I'd probably panic. I rely on my phone for everything. I view the Internet if I need to find something out when I'm out and about. It's just on my phone straight away. So it's quite useful having a phone because if you need information you've got it. If you get in an accident you've got something to use to phone emergency services.* (Kate)

Patients reached for their mICTs when they needed digital communication; the Internet, email, calendars, telephone, apps, games, etc., instead of other forms of ICTs because their needs were being met by one convenient mobile device. Patients were able to have face-to-face video chats from a location of their choice, which made it more convenient and safer for vulnerable patients to use. MICTs provided patients with communication options, being able to choose the most convenient medium for them. The patient was

provided with a convenient menu of usability and functionality options that could be utilised when required at a place of their choosing:

> *Mobile has now reached the stage where there's no reason really to use anything but mobile.* (Adam)

Their 'Ease of use' was also a determining factor in the adoption and continued use of mICTs. The design of mICTs meant that, for some patients, their interaction with mICTs was intuitive and easy:

> *Easy, I find it [tablet-PC] easy to use. I find it easy enough to navigate. It is intuitive.* (Janet)

MICTs provided a sense of 'Connectivity' to others. Using mICTs enabled patients to be connected, whether that was to family, friends, people, the Internet, being connected to their inner feelings and emotions, retrieving information, or gaining knowledge. MICTs facilitated patients to connect through email, telephone, video chat, text, instant messaging and SNSs. Social support was given and received. Therefore, 'Connectivity' was an important focused code within the category of 'Functionality', as mICTs offered connectivity, both inward to the self and outward to society, in regards to the transfer of information:

> *I'm always connected to something somewhere.* (Brian)

The small, compact and mobile design of mICTs enabled them to be carried on and/or around the person. This meant that the hardware itself was readily accessible to patients, complementing their feelings of 'Attachment' and their sense of having 'Back-up' if required. MICTs facilitated 'Access from others' due to their 'Connectivity', which offered instant and immediate communication and up-to-date information. For some patients, particularly those who found it difficult to leave the house, this connectivity was a lifeline to the outside world, facilitating them to meet their varying needs. Instead of being location-dependent, such as sitting at a PC workstation, patients used their mICTs more flexibly and inclusively in the home or outside:

> *I've got this iPad with the flip cover and you can stand it up and I can type quite comfortably on that and sometimes I'll put that on the desk in front of the PC and type on that for email rather than start up the PC with a proper keyboard. It's easier just to flip out the iPad, it's already powered up, takes no time to get into whatever you want and it's just easier. I just sit on the sofa, it's only if I have to*

> *type a lot that I bother to put it on the desk and then it's just that little bit easier to use the keyboard but it's still easier than switching on a PC.* (Adam)

The basic mobile phone was used as a communication device, whereas smartphones, tablet-PCs and laptops offered additional functionality as digital platforms offering the user a menu of options. Patients provided examples of using their mICTs for media and entertainment, educational purposes, accessing the Internet, social networking, self-management activities, communication, and sending and receiving information. For some patients, using mICTs helped them to connect with their emotions and work through feelings, for example, writing how they were feeling in a text message or email was often cathartic for patients, irrespective of whether they chose to send the message:

> *I feel like I can open up more in a text. If I'm trying to say something, speaking it, I get really emotional and I can feel myself starting to cry, if it's something serious, I'll get upset about it. Whereas if I'm texting, I know I can get upset but they're not going to hear it in my voice. They're just going to be able to read what I'm saying to them and they're not going to think, 'Oh she's upset.' That's what I normally do, is text people how I feel. It allows me to open up a lot more how I'm feeling whereas, if I'm talking on the phone, I feel like I can't open up, I feel they're going to judge me over the phone. I don't know if they're judging me when they're reading my text but I feel more confident sending text messages. It's the same with email as well, I open up a lot more in my emails.* (Kate)

The technology was also instantaneous and immediate, quick to power up, providing information at patients' fingertips, in comparison to PCs. Mobile technology provided the user with 'Connectivity' to others, the Internet, software applications and the self:

> *I've got a smartphone, I've got a tablet, I've got a laptop so always connected to something somewhere.* (Brian)

> *Instant information, just so many things that you don't need to carry – a wallet, a notepad, a diary; constantly updated, constantly synced.* (Cal)

> *It keeps you safe because she can just tell you how much she wants you to know so, video-chat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house. If I'd met her in real life, she lives in England, if she came to visit who knows what could happen because two people with a severe mental illness, if they locked heads, something could really go down. At least if we had a disagreement on Skype – shut the laptop and it's gone.* (Candy)

The increased power of a laptop in comparison to other mICTs facilitated its adoption by some patients as a mobile workstation for activities such as making music, word processing and symptom management:

I use my laptop mainly for Facebook with PTSD. I need distractions to control flashbacks and stuff like that. So I use Facebook and I play the Facebook games and that gives me a distraction. Sometimes there's pages that are on Facebook for sufferers with PTSD that are borderline personality and depression. You can get advice or even some coping strategies you could pick up and say well I'll try that. It's mainly things like that, that I look at. (Kelly)

I have a laptop, two laptops, one is old but at least I know how to work it. One that I recently purchased and I'm a bit out of practice at setting up things from scratch. Installing anti-virus software and all that sort of thing so it's just sitting there waiting to be put on. I used the laptop a lot for creative purposes for therapy; creating art, editing photographs, skills that would keep my mind occupied, distracted and give me a sense of satisfaction out of using some sort of creativity. (Peter)

However, the laptop's reliance upon the availability of Wi-Fi or an Ethernet cable for Internet access was viewed as an inconvenience, which made laptops less attractive to some patients. Instead, because smartphones had Internet access and telephone capabilities, they were patients' first choice of mICTs. Mixtures of Apple, Android and Windows phones were used by patients with a range of specifications; from older versions, to the most up-to-date. Smartphones had become embedded into the lives of patients and facilitated the meeting of certain needs and daily activities:

My phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have WiFi so I'm quite reliant on just my phone. (Candy)

I've got my Nokia. I do everything from this. Hotmail, everything; Facebook, Candycrush, everything, the whole lot, it's brilliant. (Valery)

I use it for banking online just to help with my budgeting so I use it for my bank, I use it for that app. I really need my phone for banking online to make sure that I'm not overdrawn, to make sure I'm budgeting my money because I do a budget plan every two weeks. I need to make sure that I've got enough money from my direct debit so I use mainly my phone, mobile technology for mainly the banking online and Facebook. And obviously for WhatsApp and Viber. Couldn't do without mobile technology cause as I said I'd need that for my banking online because everything is online nowadays like banking online and registering with different places. Every day I'm on my banking online making sure I'm not overdrawn or making sure that a certain direct debit has come out. (Gail)

Smartphones were more likely than any other mICT to be carried on or be near the person. They were the type of mICT used most frequently, for the longest periods of time, usually always switched on and ready at hand. Patients had appeared to form the strongest attachments to smartphones when compared with laptops and tablet-PCs, due to the usability and functionality benefits that they offered. Patients used tablet-PCs, usually at

home, for accessing and browsing the Internet. Accessing the Internet through a tablet-PC enabled patients to email, use SNSs, search for information, read the news and shop:

> *What do I use my tablet for? Shopping; clothes shopping, grocery shopping, anything that my daughter needs, be it shoes, trainers, clothes. Mainly those kinds of purchases. Skin cream, beauty products, shampoo, conditioner. I like it for, you know, shopping and yoga.* (Janet)

Due to their larger size, in comparison to the smartphone, tablet-PCs were less portable and functional when outside. However, this was less of an issue when the participants were indoors; also, the larger screen size of tablet-PCs, in comparison to smartphones, was viewed by patients as offering improved viewing options. This made them a more attractive choice for gaming and entertainment purposes, such as watching movies, TV, reading, and word processing for filling out job applications. Tablet-PCs had moved into the domain once filled by PC workstations. The larger screen sizes of tablet-PCs were favoured when undertaking directed activities, such as watching and listening to people doing meditation or yoga:

> *I use my iPad, I just set it up on a bench or something then do my yoga from that. It's helpful for me. It grounds me a little bit when I'm doing my yoga every day I feel more steady.* (Janet)

They were also portable enough to be packed away when travelling so that patients could continue with their routines and the behaviours that were important to them for their recovery. The functionality and usability of tablet-PCs provided patients with an increased sense of interactivity, in comparison to undertaking similar activities using DVDs or CDs, making them their preferred technology. The range of mICTs used by patients, the motivation to own them, and the type of device chosen, spanned a spectrum in terms of functionality, usability, models and price range requirements. For example, for basic communication options, where text and telephone was required, a basic mobile phone was used. For increased functionality and usability, patients selected smartphones, tablet-PCs and laptops. Some patients held their mICTs as items of prestige or of personal value, and held aspirations for owning the latest models. Other patients considered older versions of mICTs, which still offered acceptable levels of functionality and usability, to be acceptable, and were reluctant to constantly upgrade or own the latest version.

Challenges of using mICTs

When using mICTs, patients were faced with functionality and usability issues. 'Functionality issues' were related to software and hardware problems, including

'Coverage and connectivity' problems, which interfered with using mICTs in the desired manner:

> *Well if your Internet doesn't work and you're really needing to get on something. I've got a depression forum I use regularly. If I couldn't get on that, if I needed it, that could cause a lot of stress. If my phone signal's dodgy, or my mum's signal was down the other day and every time I tried to send a message it said message failed so I thought that was my phone. I got myself up to a ten out of ten for stress thinking my phone was broken but it wasn't. So technology's not always reliable, my charger doesn't always work as well.* (Candy)

Coverage and connectivity was a concern for patients who relied on their mICT use to help keep them well. The challenges relating to how mICTs functioned and operated were highlighted by the focused codes; 'Hardware issues',' Reliability issues', and 'Systems update issues'. Whilst functionality issues for most would likely be problematic for patients recovering from mood disorders, they caused a significant impact. For some patients, their mICTs were relied upon daily to help keep them well and the unreliability of a network could cause anxiety and stress:

> *Well if your Internet doesn't work and you're really needing to, if the networks down and you're needing to get on something, like I've got a depression forum I use regularly if I couldn't get on that if I needed it that could cause a lot of stress and then thinking about, this is me personally but if my phone, say my signals dodgy or well my mum's signal was down the other day and every time I tried to send a message it said message failed so I thought that was my phone so I got myself up to a 10 out of 10 for stress thinking my phone was broken but it wasn't.* (Candy)

As the patients relied increasingly on mICTs to meet their needs, any failures in the hardware, software or network, placed significant stress and anxiety on the person, even if it was only a perceived fault. Reduced or intermittent coverage interfered with patients' self-management techniques, such as going for a walk while listening to digital radio or connecting to an Internet forum for support:

> *We live in Scotland and the signal is rubbish. Connection to the Internet away from the middle of town is pretty hopeless; it's really frustrating if you want to get out walking. My fiancée wasn't feeling particularly well and I thought I'll grab my phone and a pair of headphones and I'll go and listen to the radio and go for a walk and it doesn't play the radio unless it's connected to 3G signal. I remember that the very first mobile used to have a radio on it at the very least. So I had to resurrect an old phone that's got an FM radio on it; all this technology has overtaken what you might actually want to use it for.* (Brian)

Patients' relationships with mICTs affected their moods. For example, being constantly contactable and receiving numerous texts could precipitate a lowering of mood:

> *That's when I got caught out the last day; going to my mum's, just round the corner from me and it's like, 'Oh did you not get my texts?' and I'll go, 'Yeah I got your texts,' the one that I did get, and then she'll say, 'But I sent you another 3 or 4,' and I'll say, 'No I didn't get them,' but I did get them, that's the ones that have went on and on. And then it's like do you need me to get this, do you want me to get that and it's like could have been helpful but it's just like overbearing at times and I just it triggers my moods for the next day. It makes me feel crap.* (Jeremy)

The patients' levels of 'IT literacy' could affect their usage in terms of what benefits they received from the functionality that their mICTs offered and their confidence in using the technology. The engagement with technology ranged from those who were confident, early adopters, to the more tentative patient, who used the basic functionality of their mICTs due to being wary of what they offered:

> *I get frustrated with things that should be simple like bookmarks and just things that my daughter does in seconds and she doesn't show me. I think, 'I'd quite like to bookmark that,' and I don't, I just have to remember. I'll write it down still or something, so I must get her to show me. I know now it's just there and it comes up and there's a favourites bit and I'm still going into things all the time. I'm sure there's loads of things it does that I don't know about. But my daughter, she's really good, so if I'm stuck she just does it but the problem is they just do it for you and then you don't really learn anything but she's fantastic. I didn't know how to put my music from my iPad onto my phone so for instance she just did that for me.* (Janet)

Keeping up-to-date with technology as it constantly develops, demanded that patients continually learned how to interact and use new technology. For patients with IT literacy issues, this was problematic and stress-provoking:

> *When people get new phones it's like, 'What's this do and what's this do?' but it's just making sure that there's no point having it if you don't know how to use it. It takes a while to get used to, it took me a while to get used to the new, I had an iPhone 5 to go to an iPhone 6 Plus and you're like, 'Wow it's so much different.' The basics are there but there's a lot more different stuff so technology's always upgrading. I never had the thumbprint to open your phone on my last phone so it's setting all that up and stuff like that but you have to keep on top of it because you're going to get left behind. So you have to learn what everything can do on your phone.* (Tricia)

The screen sizes of mICTs, at times, limited interactivity, as most mICTs, due to their mobile nature, tended to have relatively small screen sizes compared to PC monitors and

smart TVs. This could limit the interactivity for some patients who preferred seeing images on a larger scale. A cable could be used to connect the mICT to a TV or monitor, but this detracted from its mobile nature:

> *Well I do miss a bigger screen, that's why I'm looking for a cable to make the screen bigger, sometimes you want it to be bigger, don't you? Even if you're looking at clothes or something, sometimes you think it would be quite nice to have that bigger.* (Janet)

Patients were reluctant to use their mobile telephone or smartphone as a telephone due to having experienced problems with phone-calls. Hearing the telephone ring could be stressful, especially the landline, and patients stated that they would often ignore the telephone unless they could see the number and know who was phoning. Patients provided examples of this behaviour, which related to services such as the Jobcentre, the Council and the NHS. These services would often telephone, however, if incoming numbers were blocked or displayed as unknown, then patients would often leave the caller to ring-off or let it go to answer machine:

> *Rather than phoning people, I text. Somebody phones me and I'll not answer, basically, I'll just let it ring even if it's my mum. And there are times that I just cannot be bothered even picking it up and talking. But I'll text back. And there are times that I won't even answer it for days. I won't even reply back, I'll just switch it off.* (Jeremy)

Having to answer the telephone would cause anxiety and stress in patients who preferred other means of communication, such as texting. The rationale for this anxiety was explained by the participants having experienced a feeling of pressure; the requirement to respond immediately to the other person due to the synchronous form of communication. Text or email was preferred, as it gave patients more time to think and frame what they wanted to say:

> *It's different when you're typing on Facebook or something because you can think about what you're saying. Edit it, take out what you're going to say but I've always found using a telephone very uncomfortable, I don't like using a telephone at work at all.* (Brian)

Patients experienced 'Usability issues' when encountering 'The dangers of the Internet', such as conflicting information and online personas, and inappropriate use from cyberbullying and trolling:

You have to be very careful especially what you post on Facebook. If you post something and you're expecting nice comments, sometimes you get negative comments, which can lead to feeling bullied or emotionally abused in a way which can then lead to self-harm and things. (Gail)

A couple of times I've deactivated my account because I've thought when you're feeling a bit down the last thing you want to have is folk on Facebook; 'Oh how great their life is,' 'Oh they're away on their holidays,' it's fantastic. You know, obviously, they're only putting the good stuff, but it can make you feel a bit bleak, you're thinking, 'For god's sake, why is their life so bloody perfect?' And you do. It can actually make you feel worse about yourself, especially if you're at a low point. It can get quite bad, it hasn't made me suicidal but it has made me, my mood, much, much worse. It can make you feel really low, especially if you're feeling depressed. It's a public thing, you've had public fallouts with family members, and it can make you feel a lot worse about yourself. (Valery)

You get those trolls who like to see people suffer. I got a text and it was 22 pages from a boy telling me to commit suicide, to take a long jump off a short bridge and all these nasty things. If that was said face-to-face that could have had a lot of a worse reaction but it's a lot safer on the phone because all you have to do is delete the message and block them. (Candy)

Personal factors influenced patients' usability experiences, as, although mICTs had become embedded and incorporated into patients' lives, they disliked the negative effects that mICTs could have on relationships and the thought of being constantly contactable by others. MICTs' ability to make someone 'Constantly contactable' could affect their mood, as, at times, people wanted privacy and to be left alone:

It's the other people at the other end. Okay, they are checking up on me, like my mum's neighbour, she kind of worries. Okay she's doing a good thing, she sees, but to me, it gets overbearing and it just sets me off. If I get the text, 'How's things?' If I text back, I just put 'Fine', that's all I text. I don't go into my day's been crap, or whatever, I just put 'Fine.' Even if it has been crap, I just put 'Fine,' it's short and sweet. I'll get another text back maybe five or ten minutes later, 'Have you had your tea?' Then you get other texts and it gets to me that way, it gets overbearing and then I just don't reply. And then they think there is something wrong with their phone because she'll say to me when I've went to my mum's, 'Oh did you get my text?' I'll go, 'No,' but I did. So I'm wanting, I'm in control of that situation if it's overbearing. If I reply back, I keep on getting another message back, it goes on and on sometimes. (Jeremy)

Establishing new routines for using software and varying levels of IT literacy were also factors that affected the usability of the technology. Patients were 'Navigating and negotiating' the complex behavioural, cognitive and social phenomenon of mICT use to try to use the benefits and avoid the challenges as best they could:

There can be times when that control changes and the smartphone or the tablet almost becomes, I want to say a person, but like an essence in itself and it begins to control you. (Andrew)

My daughter posts pictures of her and her dad. I haven't seen her for three years and I don't like the fact that she's got all the contact with him and not any with me. Her posting things on Facebook gets me frustrated because I've seen that. There's horrible things that gets posted on it that I don't like. The other day there was this guy who'd beaten this little boy and you could see his face was all bruised and swollen and I don't like that. (Beth)

Using search engines to find information on conditions or medication was fraught with issues for patients. The reliability of information was variable with online searches returning thousands of results with questionable validity. Patients therefore, had the choice to accept the search results or were required to filter the information the best they could and use their discretion with the information retrieved.

You tend to find quite a lot of conflicting information. I suppose, by default, you tend to trust the NHS site. If you do a Google search for an illness or a medication or something that you want to pick up and you get thousands of responses, thousands of returns, I guess it's because it's a worldwide thing as well. Health services in America for example could be completely different from what it is here because you just sell and prescribe whatever you want and go to the chemist and buy it. I think you get a lot of strange information, particularly about medications and things online. (Brian)

Very wary of everyone, everyone looks up questions about depression and their pills and everything on the Internet but I am very wary of how much absolute rubbish there is out there. I tend to stick to known reputable sources of information for something like that. (Cal)

How people represented themselves online did not necessary relate to their off-line lives. Therefore, developing trust for people or information on the Internet was problematic for patients. This manifested itself in trust issues for patients and queries relating to whether they could genuinely trust other people online, those who they may never have met in real life, and knew very little about:

Through Facebook you're trying to sort of look into the real world but Facebook is very fake, it's very one-sided so it's not really reality. You only see what you want to see, you don't really see what really goes on with people, you only see one side. When I go on Facebook; 'Oh it's happy bubbly Gail logging on,' when actually, behind that smartphone or computer screen, it's somebody that's very broken, very broken. Depressed, isolated and nobody sees that side of me, not unless it's on the depression support group and I can be very honest because it's a closed group. So when you post anything on that closed group your friends and family can't see what you're posting. It's only people on that support group that

can see what you're posting so you can be yourself on the support groups. You can take off your mask, you don't need to pretend to be somebody you're not, you can be completely honest. (Gail)

The Internet was considered a place where people could experience online attacks through verbal aggression, slander, damaged reputations, trolling, and identity theft, amongst other issues:

I'm very reluctant to speak on Facebook or any of these things, a sense of keeping yourself safe, nobody can judge you if you don't go on. (Sarah)

Facebook can be very destructive if you're on it every day and you're dwelling on other people's lives and comparing yourself to somebody else and putting yourself down. It can be very destructive; it can actually be quite dangerous for your mental health and your state of mind. (Gail)

I think it can be quite a dangerous place if you, if you're overly trusting of people. (Brian)

Children use it to take the mick. They go onto these askFM sites, don't use these sites if you're not in the right frame of mind. It's just common sense but children at that age think they're invincible. It's anonymous, you can ask questions anonymously, and it led to the suicide of a 15 year old girl in England about a year ago. People were constantly calling her names on it and telling her she should go and commit suicide, so she did it. And people are saying ban it, ban that website, it's bad. Don't ban the website; ban our children if they can't use it appropriately. (Candy)

'Friend' had become an ambiguous term on SNSs and the behaviours of people online could lead to serious consequences:

It's like a war on Facebook, if you only get four likes on a picture, you're obviously not very pretty. But some people are getting two-hundred hundred likes on a photo. When you're younger, that's the be all and end all; people would commit suicide over thinking that people didn't like them. But then people don't realise that these people that are getting two-hundred likes on a photo have about two-thousand friends on Facebook. (Candy)

Patients found themselves 'Navigating the challenges alone' of other people's inappropriate use of the Internet. Due to the Internet being without borders and control, vulnerable patients could often view inappropriate content:

I was on a writing site and somebody was being very disparaging towards me and I was at such a low point that I did actually go out and take an overdose afterwards. I'm a lot further on now, I'm able to just switch it off when I switch the machine off. But at that point, I wasn't doing very well, I'd just separated

from my ex-partner and I was still in hospital. I was being allowed out to use the computers go to the library. I saw this guy who was basically a professional troll on this site. He said things to upset everybody, but I was at a very bad point. Anyway, it's easy to forget those things when you're actually in the good side of recovery, you do forget them, the worst bits. Now it's not so much a problem, but that is five years of therapy later, I can deal with it better, but it can be a problem. (Susan)

Using mICTs essentially opened a window into the online world for patients and all the helpful and unhelpful things that this provided them with. As mICTs became increasingly embedded into patients' lives, becoming necessities rather than novelties, reliability issues influenced wellbeing; the fear of faults, coverage and failure could cause patients stress and inconvenience. Of concern to patients was the conflicting reliability and validity of information on the Internet; this was associated with the requirement to learn how to solely navigate the dangers online. Other examples of problematic behaviours that patients had to navigate were; inappropriate use of the Internet through trolling and cyberbullying, and the release of personal information by 'friends'. Although there were clear issues raised for patients through their use of mICTs, they never disposed of them or stopped using them completely; they appeared at times to have a love-hate relationship with their mICTs. There was centrality in the ways that mICTs fitted into patients' lives, with some having more integral relationships with their mICTs than others. Patients were aware that their use of mICTs could be unhelpful and could effect their daily living and recovery. Steps would be put in place to manage their use, and lessen their intrusiveness, such as using apps to silence phones during sleep, switching the phone off, filtering information, and/or controlling communication.

Personal factors and influence on mICT use

The behaviours and experiences of patients appeared to change over time through their use of mICTs. Daily activities that had once been separate, such as going to the supermarket for shopping, socialising in a café, or using their PC at home to find information on the Internet, had now been combined through the mICTs' ability to offer interconnectivity, which placed patients in the centre of their on-and-off line worlds. How a patient felt or at what stage a patient was in their recovery appeared to have an effect upon their relationship with, and use of, mICTs:

When you're really at the bottom you sleep quite well, I sleep quite well. And even though the telly's on, I'm watching it, I'm not taking it in. I could have the computer on, and I'm watching, but I'm not taking it in. But when I start to feel myself getting lighter, I start to look at things, and see if things are on. So I would

say the middle part of the depression, once I'm out of it, I don't use technology as much because I'm verbally communicating in person. Depends on the days, what day, what stage of my depression I'm at. (Alice)

For example, when patients were very unwell with low mood, their mICT use might be minimal; however, as a patient's mood began to lift, then their usage increased. As patients reached stages where they felt that they had recovered satisfactorily, their mICT use reduced as their time was filled with other activities. MICTs were then purposefully used to maintain and provide forward momentum in the recovery process:

> *I've used a couple of small videos on YouTube for meditation, breath control, visualisation, those sorts of things. I've used those when I've felt quite stressed-out, I've put the headphones on and accessed them. There's quite a lot of them on YouTube, actually, visualising your problems on a leaf going down a river and also some relaxation techniques on Youtube which I've found to be very helpful. I do use it [smartphone] as an organiser especially for appointments because I'm usually very punctual and I know what day I'm supposed to be in places.* (Andrew)

Motivation was an issue for patients when using certain functions of their mICTs, for example, establishing a routine to use the calendar to remember appointments or events. Other issues were forgetting that certain software was available to use or procrastinating by sending messages when a more constructive use of time could be found:

> *The old computer joke is 'error between keyboard and chair'. The problem is the person, and it's me, I can't, it's hard to get into, it's hard to make that my routine.* (Adam)

> *It gets in the way of all sorts of things, you've found you've been sitting on the couch messaging somebody for an hour when you should have been outside going for a walk or doing something constructive.* (Brian)

The use of mICTs on a regular basis required the establishment of routines that needed motivation, reward, fulfilment and a sense that the activity had purpose. If software and hardware was not designed well, the incentive to use the technology was lost regularly:

> *Mood panda was the one I tried the longest. I think basically it was just a sort of tick-box approach of how you're feeling, that sort of thing, often there wasn't the right tick-box. It's a matter of discipline to carry on doing it, it does take an effort. I'm not too good at the effort involved in many of these things. It's like diary keeping and that sort of thing, I find it very tedious. You have to keep persevere until it becomes a habit I guess.* (Cal)

Forming new routines to use certain software with varying IT literacy skills also affected the usability of mICTs. Other factors that influenced use included patients' abilities to

use hardware and software. This was associated with whether patients were early adopters and followers of technology, compared to those patients who were only interested in using the basic functionality of their mICTs:

> *Well obviously it's [smartphone] always with me. Keeps me in touch with people a lot more than I would be in touch with if I didn't have Facebook. IT is a pretty integral part of my life. I've worked with computers off and on for a long time. I did a degree in computing, after that I set up an IT business, a web-design business for about four years so it's been a part of my life for a long time. I don't have the latest gadget just because it's the latest gadget but if something comes out or a new app comes out that I can see a value to then I'll try it out as soon as it comes out.* (Cal)

> *Me and technology we aren't very good at all. I don't do well with technology. As long as I've got the basics then that's all I need. I just don't understand it. I didn't get any encouragement from my parents, I didn't have a very good childhood.* (Beth)

As technology constantly developed there was a need for patients to continually learn how to interact and use new technology; this, for some patients with IT literacy issues, was problematic. Some patients had 'A love-hate relationship' with their mICTs:

> *I have a love-hate relationship with it, doesn't everybody? It's great and it's awful, it's the two extremes and I'm better these days now at thinking of it as just a tool to use so I'm not always available on it. I don't use it all the time, I see people that I feel are addicted to it. I've probably been addicted particularly to social media in the past myself. I think it's useful for me to know that it's a tool. To know that it should be useful for me not antagonising, if I find that it's triggering things, I'm quite good these days at switching it off. I know other people that don't find that so easy.* (Peter)

Patients liked using and felt reliant upon their mICTs; however, they disliked their 'Effect on friendships and relationships':

> *Sometimes when you want to be left alone, you really can't be left alone because there is always a piece of technology that they can get you on. You forget to switch something off and they've got you on that and you're like, 'Oh no,' that's the only disadvantage but that doesn't happen often.* (Kelly)

> *At times I wish there was no electronic communication. And then there are times that it is good because I'm able to contact people back and forward. It sets a lot of triggers off in my head as well and I can't control that, it's like every day or every hour things can happen. Sometimes I don't want to bother with it; I'd rather switch it off, stick it in a drawer and leave it. But then I think it's my mum phoning me or it's my brother texting me. They don't text, because they know; 'You never answer your texts,' that's all I get from my brother, 'We're at your door,' but I*

never let anybody into my house. So it's difficult to communicate that way. (Jeremy)

Having an online presence, such as in an SNS or being contactable through owning a mobile phone, made some people feel as though their personal space was diminishing or they disliked the attention due to being 'constantly contactable'. This led to people finding 'Relief by disconnecting from SNSs' or switching their phone off for periods of time:

I shut myself off from all this social networking stuff. I got annoyed that I had no real world connection to people. The only people that I was still talking to were people that I had never met and it had got annoying to me. You see TV programmes where there's a group of people, I'll use 'Friends' as an example, that kind of programme where there's a group of close friends and they see each other every day in real life. It got annoying to me that my life had none of that so I just deactivated it. Twitter let me delete my account. Facebook is deactivated until I ever login again. There were websites that I used forum posts to take part in the chat, I got really annoyed and took myself out of all of them. Taking that extra step of just taking myself away from it completely, it was at the time, kind of a relief, to not be, I guess, to not me reminded of how far things were from where I wanted them to be. (Adam)

When I was going through my relationship ending we obviously had to sort out practicalities and it felt like I was walking around with a time-bomb in my pocket. Next time it beeped it was going to be a message that would really triggering sad information about my ex-partner's new relationship for example, things that I didn't want to hear about. I think it's taken a lot of thought on my part, in fact, I took complete retreat from it. I closed my social media accounts and didn't check my email and didn't have my smartphone on for about a month because I needed time out to reassess. Now I'm much happier with it because I think I learned a lot through switching it off for a month. (Peter)

Due to difficulty expressing emotions through text, or instant messaging, some people found themselves in arguments more readily online due to miscommunication. It appears that the lack of face-to-face communication in some forms of online mICT communication effected people's ability to understand fully what was being communicated due to the lack of visual cues and tonal references:

I think it's quite easy if you use social media to get into arguments. It's difficult to resolve disagreements I think on social media, and you often find you're left more upset and more annoyed and angry than you would have been perhaps if you'd had a heated discussing with somebody in real life. I find it difficult to put your emotions across to somebody in text and I think a lot, I've had a lot of arguments with people that have been blown out of proportion and I've seen a lot of other people have arguments and been blown out or proportion because they've been in written form. I think that happens more and more. (Brian)

This miscommunication could lead to conflict and arguments online or by text. People also found that there had been 'Leaking of information' sent via mICTs by 'friends', which put a strain on relationships.

Digital filter

MICTs provided patients with a 'Digital filter'; a mechanism to filter the exchange of information between the intrapersonal and interpersonal off-and-online world. The 'Digital filter' was used purposefully, as a behaviour, which reduced external stimuli from acting as stressors upon the person. For example, problematic websites could be avoided, telephone calls screened, text messages responded to when convenient, video-chat used to gauge non-verbal body language, and email used as a cathartic exercise:

> *It just removes that immediacy of having to react, which, especially when you're depressed, you can't, because everything is kind of a bit numb. You are slower to react so with messages it's good to be able to go back and then read them and get the meaning at a later time. (Susan)*

> *Sometimes I don't answer the house phone because I know it's one of them stupid calls and you can't get off. They get really, really pushy, like PPI or something and you get that all the time. I think for god sake here we go again, or you answer the phone and the phone goes dead and it's absolute ridiculous. I really like my mobile because you can actually see who's calling you. (Valery)*

> *In relation to depression, filtering is important. If I followed every post of every person that I have ever friended on Facebook, it's the same reason I've pretty much dumped Twitter. It's just too much and it becomes a chore and I did find at one point it was like doing a job. It was my job to get through all this information, and no, that's daft, it's just junk. It did take conscious effort to pare things down a little bit and keep it under control and not get, not turn into, a full time profession just trying to keep up with all this data which you don't need. Just recently I came up with a new way of filtering the TV news as well. I watch the news online and pause it when it starts for about five minutes then let it run. As soon as a politician starts talking I skip them which has helped my anger levels quite a bit, it's lovely to be able to do something like that. (Cal)*

The 'Digital filter' was the mechanism which provided 'Choice and control' for the patient in regards to what information they accessed, or alternatively, avoided:

> *It [smartphone] helps me control my life; who I interact with, when I interact with them, how I keep my appointments, how I keep information. (Greig)*

> *It's [texting/email using mICT] less stressful immediately and less emotionally involved than picking up the phone where you don't know what their response is going to be. When you do get their response on a telephone call you have to deal with it, you have to process it and deal with it straight away. The Borderline*

Personality Disorder side comes into it because my emotional reaction will be immediate and intense which means I can say the wrong thing. Things get heated and upset and you end up hanging up feeling worse than when you started. Whereas, if you send a message or an email or a Facebook message, even if you do get a negative response, or not the kind of response you were looking for, you can switch it off and then think about it. Then come back to it, or ignore it, you can delete it and you can deal with it in your own time and when you're ready for it rather than having to deal with it there and then. For me, a lot of phone calls, was just not knowing quite what's going to happen at the other end and you can't see the other person to read their intent. You can't read their body language over the phone. It [texting/email using mICT] just gives you that safe, kind of distance, and you're still in control of when you read the messages and when you send messages. (Susan)

Having a mood disorder could lessen patients' sense of being in control; mICTs appeared to offer the ability to control something, and, possibly more importantly, feel in control. Patients were offered a sense of 'Safety and security' through the choice and control that mICTs provided in terms of whom they chose to interact and communicate with, and how. In the offline world, patients who had face-to-face interactions were in close proximity to others. Video chat provided patients with a level of security, as they could communicate from their own home, potentially with people they have not known for long or met in person, and control the virtual environment where the encounter took place. If the interaction appeared to turn problematic, then the website, app or mICT could simply be closed, offering the patient a sense of control and security:

I'm not very safe in my own life, outwith technology, I'm not very safe. I self-harm, my depression leads to suicidal thoughts, so if you're going to use something like a phone you need to be able to control how safe you are because a lot of bad things happen. It keeps you safe. Video-chat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house. If you're getting upset you can turn it off. If I'm having an argument with my boyfriend I can't just turn him off, so I can get myself really upset and stressed. Say I was arguing with a girl on Skype, I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it. (Candy)

Some patients purposefully used video-chat to control the virtual arena. This provided space to decide whether to continue speaking to someone if they were being upsetting, which offered a sense of empowerment. This also facilitated pauses in conversation, enabling patients to attend to their emotions, before deciding whether to continue or terminate video-chats. Patients chose methods of communication that suited them, which facilitated their control of communication channels in the off-and-online environments. MICTs enabled patients to feel in control of their environment. Patients could use their

mICTs from the security of their own homes while still having face-to-face conversations with people, the difference being that conversations were digital in nature, ones in which the patient controlled the termination of the interaction:

> *When you have depression and anxiety you're not in control of very much at all. You're not in control of your moods, you're not in control of like. I never feel happy, at least I can control something; you can, if someone's upsetting you, put them to the side and forget about it.* (Candy)

If patients found themselves being cyberbullied, or if they had been sent unhelpful text messages, they could choose to block or delete users, terminate video chats, avoid websites, unfriend on SNSs, choose not to answer telephone calls, and, ultimately, switch their device off to be uncontactable. This placed them in control of their communication and interaction with others, which secured their channels of interconnectivity:

> *It's like me controlling it basically. If let's say the guy texts back and gives comments, whatever way he's worded it, I'll either text or not text. I am controlling what I send back. Just that space to get control of myself, do it my way.* (Jeremy)

This choice and control was something particularly valued by patients in their use of mICTs as communication conduits. Patients held their mICTs in high regard in terms of helping them recover from mood disorders. Their mICTs were objects of consistency throughout the course of their mood disorders, seen as being 'Key to recovery'; the functionality of the 'Digital filter' afforded patients with a sense of security:

> *Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it. It's just key to my depression. I mean, people don't really explore that sort of side of media, it's always what's the negatives. It gets me through a lot. So I think that's the key to it for me to get better, is to have my constant contact with people.* (Candy)

The detached form of communication and connectivity enabled patients to have the choice and control over whether to delete and/or block problematic users. Also, having a digital record of communication was valuable if evidence of online abuse was required:

> *It [smartphone] helps because I had to get the police involved. If it was said face-to-face, it was one person's word against the other's. I could physically show*

them the text so he obviously got in a lot of bother for that so I think phones are a lot safer. (Candy)

The mICTs give patients choice in how, when and where they are interacted, and whether to reply to a negative comment or to delete it:

> *It just gives you that safe kind of distance; you're still in control of when you read the messages and when you send messages.* (Susan)

> *Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.* (Candy)

> *They weren't there physically and they couldn't argue back with you. I just wouldn't bother texting them back, it was like a safety net. Think it gives you a sense of when you're in that space, you've not got anybody to sort of push at you or sort of help you because it's something I like to deal with on my own. When I have a bad deal I just accept it now.* (Alice)

The mICT essentially became an emotional shield for patients, filtering out what they did not want another person to see or hear, but still facilitated communication in a tailored manner. MICTs appeared to facilitate the disinhibition of patients emotionally, such as the writing of cathartic emails or text messages:

> *It's something that you can use to contact someone if you need to speak to somebody; it's like a comfort to have.* (Kelly)

Patients felt they were being judged less by others when using online written forms of communication. 'A safe space' appeared not to be used as a permanent refuge or place to hide. Instead, mICTs were used to get away from things that were causing problems temporarily, before moving on, when patients felt better:

> *That's my haven, my safe haven is just sitting playing games in the room. I found going to sit in my room, that's my little area that no one's allowed in and that's how I make myself feel a little bit better.* (Tricia)

MICTs provided patients with a sense of choice and control in their lives; they could choose their medium of communication, and, importantly, decide whether they wished to communicate, and, if so, they could control the digital environment.

Management of needs

The process of 'Outsourcing of needs' provided patients with mood disorders the opportunity to manage aspects of their lives through the 'Digital window' (as discussed

above). One such need that was outsourced is explained by the theoretical category 'Management of needs', which conceptualised how patients made use of their mICTs as a mechanism to facilitate self-management.

Table 19: Management of needs

Management of needs						
Duality of engagement						
Social opportunities		Sense of attachment		Survival tool		
Social networking using mICTs	Finding meaning	A part of life	Peripherality	Finding keeping well adaptions through mICTs	Informat-ion gathering	mICTs facilitate mood and emotional regulation

The majority of patients did not use specific software, such as depression apps or websites for bipolar disorder, for example, to manage their mood disorders. Instead, patients used their mICTs to help look after themselves in ways which fitted into their everyday lives; accessing their outer and inner worlds, through the process, 'Duality of engagement'. 'Management of needs' theorises this global perspective of mICT usage and is underpinned by the theoretical framework highlighted in Table 19. 'Management of needs', its coding and interrelationships, are discussed in greater depth below.

Duality of Engagement

'Duality of engagement' conceptualised the process where one engaged with the online and offline world, through the mechanism of the 'Digital window'. Mobile technology provided the user with choice and control by using their 'Digital filter'. Their mICTs filtered the inward and outward flow of information; which positioned them in a central and powerful place in regards to their relationship to others, the transfer of information, and their communication options:

> *I think technology provides me with better access to my needs. I could pick up a phone and phone my kids but I probably would do that once a week. Whereas using technology like messenger I can talk to them now and because they've got mobile devices it doesn't really matter where they are. If they don't answer me*

straight away I know they're either at work or they're busy or they've got other things to do but it keeps me in touch with them. They live the length and breadth of the country it's difficult to do that, I can't just get in the car and pop round for a cup of coffee it's not that easy. I think my mobile technology lifts my mood because I know that my family are a click away. It's like my left arm; it's part of my life and it enables my life, it enables my life to improve through that support. I think I would be pretty lost without it and I think I would be a less happy person without the ability to communicate like I can at the moment with people generally.
(Daniel)

When using mICTs, there appeared to be a continuum of purposeful use; one patient might be aware of using mICTs to get certain needs met (support, social relationships, help), whereas another patient might be unaware that they were using mICTs in this way:

> *Researcher:* You use it to text friends, do you use it to text family?
> *Gwen:* Yeah, yeah my sister and cousins, yeah.
> *Researcher:* Might they offer support if you're having a tough day?
> *Gwen:* Mmhmm, yeah, mmhmm.
> *Researcher:* Would it be okay for me to say that you use your mobile to keep in touch with people to get support if you need it?
> *Gwen:* Yeah, yeah.
> *Researcher:* In some ways that's looking after yourself because you're needing support and you're using your mobile phone to get it?
> *Gwen:* Never thought about it that way actually.

Information could be sent and received via the 'Digital window' and could affect the interpersonal and intrapersonal off-and-online world of the individual; the extent of which was controlled through the 'Digital filter' and a person's motivation for its use.

Social Opportunities

'Duality of engagement' facilitated people to look out into society, and also, to bring society into them; creating 'Social opportunities' for 'Social networking using mICTs'. Smartphones 'Provided communication options' for patients to stay in touch with others. Patients used their smartphones less as telephones, preferring other forms of communication, such as text messaging, instant messenger, or email, which connected them to others for support. They were used for 'Accessing social support', 'Supporting others', 'Maintaining relationships', and for creating new relationships and social networks, either offline or online through their mICTs:

> *Researcher:* You're attached to it to the point where losing it or not being able to use it anymore would be like using a limb?
> *Lucy:* It would be like losing a limb.
> *Researcher:* So it sounds important in your life?

> *Lucy:*   *When you freeze yourself off from everything else you still like to see that everybody else's life is living and I think that's why I'm on Facebook all the time.*
>
> *Researcher:*   *So because of agoraphobia you find it difficult to get out the house so it sounds like you use your mobile to still see what's going on or?*
>
> *Lucy:*   *Yeah, yeah.*
>
> *Researcher:*   *Keep in touch with people?*
>
> *Lucy:*   *Yeah, without doing face-to-face. I've joined a few groups on Facebook. You get all the mental health ones so I've joined a few of them and you get the news feed and an inspirational quote that'll maybe lift your spirits a little bit or make you think that you're not alone.*

The digital window provided patients with the interconnectivity required to attend to pre-existing social ties and form new relationships. Therefore, mICTs had the ability to place patients in the centre of their social world, becoming a utility central for fulfilling their needs.

Social networking using mICTs

'Accessing social support' through mICTs offered patients a sense of reassurance. This was achieved by being able to contact trusted others, wherever they were, at whatever time of day, through the interconnectivity that mICTs offered in order to receive or provide help:

> *I can contact people I know I can trust and for support, particularly my sister. She often leans on me as well when she's struggling and you know we talk to each other or Facebook message her an awful lot and when something is going badly or you're struggling with something it's good to, wherever you are, to be able to have that connectivity to somebody that can help.* (Brian)

Mobile technology made communicating with people easier, provided more options and was more convenient than other forms of communication:

> *I use Facebook messenger because it's convenient I guess, if they didn't have Facebook I could text, she wouldn't not be there if I didn't have mobile technology but it makes it easier I guess.* (Brian)

MICTs increased the possibilities for patients to seek and/or receive support when arguably they required it most:

> *It's my only contact with people when I'm having a really bad bout of depression, I'm not obviously leaving the house. If I had a normal phone, I wouldn't have any contact with people.* (Candy)

The ability of mICTs to enable interconnectivity provided a mechanism to meet social needs. Utilising the 'Digital window' provided options to give and receive the benefits of social support. Using mICTs facilitated patients to connect with others, such as friends and family, in planned or unplanned, opportunistic ways. Using online SNSs such as Facebook helped people feel that they were not alone in recovering from mood disorders. Facebook provided a space where patients could speak to their friends. In so doing, patients realised their friends also had problems with mood disorders. This was helpful for patients to know, as they felt less alone, realised mood disorders were not unique to them, had their feelings validated, and likened talking on Facebook to a form of therapy.

For patients who found it difficult to socialise due to living in rural locations, social anxiety, agoraphobia, or financial constraints, their mICTs provided a means to 'Maintain relationships' and attend to pre-existing social ties. This helped people keep a sense of connectedness with friends and family, which was viewed as being important by patients in their recovery:

> *I don't think I would manage if I didn't have daily contact with people. I get really lonely, I live on my own, so I do get really lonely. I'd be a lot worse if I didn't have my phone because at least then, you have the comfort of being able to just go and send a text if you're needing to talk to somebody.* (Candy)

'Using online SNSs' facilitated patients to overcome difficulties in socialising by 'Navigating and negotiating' their 'benefits and challenges' to meet their social needs. Most patients used SNSs; Facebook for example, provided people with a digital platform for social networking where they were interconnected with their 'friends' on their mICTs. The mobility of the technology meant they could take their friends with them wherever they went. Whether it was due to social anxiety, low self-esteem, low self-worth, reduced motivation, or other symptoms common to mood disorders, getting out the house to socialise was often difficult. Online SNSs provided a mechanism for patients to maintain relationships, make new relationships and receive social gratification. Using online SNSs provided patients with the opportunity to connect with friends who shared similar experiences with mood disorders. Social media was being accessed through mICTs to engage in social activities, which appeared to be one of the main behaviours of the patients. The mobile technology enabled patients to connect online with others through social media platforms such as Facebook. However, people also mentioned Twitter, social media apps, and online forums as places to visit and use. People's behaviour varied on social media; from those who only observed other people's profiles, to those who

thought they used it incessantly and were very interactive with the technology and fellow users. Social networking sites appeared to be places where people could just spend time online, reminisce over old pictures and posts, and feel that they have company through the other people who are online with them:

> *To just know you're not the only one in the world that can't sleep. You know there's people awake for all different reasons but it's nice. Even if there's nobody really that you want to speak to, you can just go for a nosey on people's Facebooks. To go through your own photos because I really like going to my photos; I would go through and look at my old photos and now that I have that, look back at my memories on Facebook. So every day I can go and have a look at what I was doing a year ago today, two years, three years. Sometimes it's good because you can see that you were having a massive breakdown a year ago and today you are feeling fine, or maybe three years ago you were doing something you really enjoyed, so you can think to yourself, 'Well, maybe I'll try and do that again, why don't I try and get that arranged,' because obviously I had a ball three years ago today.* (Candy)

Often, it appeared, a friend leaving a message on a patient's Facebook page, which showed that they were in that person's thoughts, was helpful emotionally for the patient. Patients, at times, chose to portray themselves in ways that were incongruent to how they were feeling. Using online SNSs and having a 'Cyber self' or online persona, facilitated patients to become more confident and out-going, compared to when they were off-line. This was due to feeling more in control over what information they chose to disclose and the method of that disclosure. Smartphones, tablet-PCs and laptops provided a menu of communication options to connect socially with others. This enabled patients to feel 'In the loop' and connected with others who lived nearby, or on the other side of the world, and who they spoke to multiple times a day, or occasionally. MICTs kept patients at the centre of their social network through the interconnectivity that it provided them.

Finding meaning

MICTs were embedded within family life; their unwritten usage rules supported family dynamics, resolved and avoided conflict or problems. Patients received intra-and-interpersonal benefits from using mICTs; becoming interconnected with others through social contact and connected emotionally with themselves through increased self-awareness. MICTs provided a mechanism for patients to talk to others in their preferred communication medium. This was especially relevant for patients who found it difficult to leave their home, and therefore, was used for 'Helping with loneliness'. Families with a member who had a mood disorder identified strategies to avoid face-to-face communication, as, at certain times, this synchronous form of communication would lead

to conflict, and, instead, they would text message or instant message one another. Patients used mICTs in cathartic processes that were disinhibited via the asynchronous communication method, by constructing text messages, which voiced feelings in words, which helped regulate their emotions. MICTs, therefore, facilitated patients to communicate in ways that were most suitable to them, often during periods when their mood disorders affected their ability to function. This helped them to avoid conflict with others, aided catharsis, and helped them to find meaning during difficult periods in their lives.

Sense of attachment

MICTs appeared companionable to people as they were taken mostly everywhere, and were nearly always switched on and near to them. People had formed a connection with the technology, and some found it difficult to imagine life without them. MICTs offered a sense of protection and security, providing ready access to friends, information and ways to manage their recovery. These objects had become more than pieces of equipment; patients had appeared to form attachments to these objects:

> *Researcher:* *How important then is mobile technology for you?*
> *Charlotte:* *Really, really, important. When I had the mishap with the phone and it just went off, it just nothing, it just was nothing, it was just sheer panic, 'Oh my goodness what will I do?' It's like you can't do anything because suddenly your phone's just gone off so that was a big disaster. It gives you then access to the outside world; I don't know where I would actually be without it, I think it's been massive in my recovery.*

MICTs were convenient, which provided patients with a sense of security in knowing that they were there if required. Patients used mixtures of mICT brands and operating systems with a range of specifications. The smartphone appeared to be the main mobile technology that patients used. It offered similar functionality to a tablet-PC and laptop, however, it was more portable and convenient to use in transit. The smartphone provided patients with the ability to combine functionalities that were once separate in one device. 'Movement and change' appeared to be at the heart of people's relationship with mICTs. This continuum ranged from being at the centre of people's lives in terms of attachment and tether to society; to being held at the edge of people's lives, both in importance and their use for social interaction. People, at times, chose either not to use mICTs or to downgrade their functionality. Therefore, patients' uses of mICTs were seen to be on continua.

A Part of Life

MICTs had become integral to people's daily activities; as a metaphorical lifeline, they helped people manage aspects of their lives, tethering them to the outside world. MICTs were desirable commodities and were associated by a number of patients with being fashionable accessories:

> *My phone's pretty much my life. I live on my own and I don't have a job just now, I don't have Wi-Fi, so I'm quite reliant on just my phone.* (Candy)

> *A Blackberry, I thought I was the business with that. It was nice and it had the buttons and what have you. Fashion a bit as well, you know, they look quite nice don't they.* (Janet)

Patients happily shared other possessions with friends and family; however, mICTs remained solely their possession. Mobile technology had become a central mainstay for the majority of patients around which everything else revolved and was connected:

> *Well my phone's the latest phone. I got it on the day that it came out. That's the only thing I have to myself, my phone and my car.* (Tricia)

> *Everything's technology these days for me.* (Candy)

Patients' relationships with their mICTs had become habitual and their interaction with them was second nature. For all patients in the study, their mICTs had become appendages in their lives, whether they were loved or hated, they were there to stay.

Having a third hand

MICTs had become a necessity, so important to some, they were likened to 'Having a third hand'; providing opportunities and resources for the person. These strong attachments appeared to be due to the 'Absolute reliance' on what the technology offered and the needs that could be fulfilled through using them, to such an extent, that mICTs were likened to offering a 'Safety net'. People's use of mICTs had transitioned from being fun and novel toys to becoming 'A must-have utility item', where 'Technology was everything' in meeting unmet needs.

Embedded nature

As mICTs were increasingly used, relied upon and infused with importance; people appeared to gradually embed them into their lives. MICTs have become established in society, along with the acceptance of certain behaviours associated with their use. Over time, and through technical development, the role that mICTs has played in patients' lives

transitioned to one of increasing centrality. From owning a basic mobile phone, which phoned and texted, through to smartphones and tablet-PCs, the technology had become normalised in society and the behaviours associated with using them had now become accepted. From a time when the Internet and gaming were mainly accessed through PCs, the pace of technology development had allowed hardware to become smaller, lighter and more portable without a loss of functionality. Therefore, they were likened to having a 'Computer in your pocket', where 'Habitual' relationships had been formed:

> *It slowly became something that you used all the time over the years.* (Brian)

Patients who had been interested in mICTs and had used them from when they were first released had seen changes in their design, functionality and usability. Also, their use of, and relationship with, mICTs, had changed over time. What were once novelty items with users displaying 'Ritualistic' behaviours had, over time, become routine:

> *I find the phone ringing or an email arriving distracting when you're in the middle of doing something and I used to curse it, now I'm barely aware of it. I'm so accustomed to it that I don't even notice it happening. Just a part of the routine of the day.* (Cal)

The portability of mICTs allowed patients to be location-independent; they were not required to sit in certain places as they were when accessing a PC; instead, their mICTs moved with them. This provided people with a certain mastery over their environment, using spaces to benefit self-management, as demonstrated by Tricia, who took her mobile technology through to her bedroom when she needed space, to minimise conflict with her family:

> *If I'm having a bad day I pretty much sit in my room all day so that I don't upset the kids because I can be quite snappy, quite snappy to my husband sometimes as well. It's not fair on them so it's easier if I just stay out the way, just in my bedroom, using the iPad or my laptop.* (Tricia)

The ability to provide powerful technology in a mobile format provided patients with an interactive platform, where they felt engaged with the technology and the environment they were in. Delivering a similar user experience proved difficult when using older types of technology, such as CDs or DVDs:

> *Well a book wouldn't work for me because I like the voice. A CD could work I imagine but you couldn't select on a CD like a journey. I suppose you could have CDs for all different things but this is quite a complicated path. You follow your own journey (on an app) so you get a tick, it almost, sort of, shows you've*

completed all these little steps; now you're going on this branch which is quite nice. (Janet)

MICTs had become 'The right fit' in people's lives, as the use of PC workstations diminished in favour of the newer, more mobile technology, due to their 'handiness' in functionality, convenience in use, and the location-independence they offered. The gradual embedding and incorporation of mICTs into people's lives had seen their use transform from being novelty to being the norm, where finding oneself without an mICT, for whatever reason, could, for some, be anxiety-provoking.

Peripherality

There was evidence of some contrast in terms of attachment, demonstrated by some participants' mICTs having gravitated towards the periphery of their lives. Mobile technology for them was less central; there was a sense of 'Peripherality', and they appeared to be less attached to the functionality and usability that the technology offered:

> *I use it occasionally, for keeping up-to-date with the news, the BBC website occasionally. There are a couple of other sort of independent journalists that do online sort of things from an independent, so I tend to use it for just another opinion from what you see on the news. I did have a Facebook page but I don't use it an awful lot, it has to be said. That was generally used for keeping in touch with things that are going on along in the stables because we've horses along there and it's just to organise joint visits with the vets and stuff like that but really, really don't make an awful lot of use of it. Personally, with a mobile phone it tends to be the usual things; making domestic phone-calls, using it as a camera, never really used it awfully, an awful lot for web-browsing or anything like that because I'm not enthusiastic about the Internet. It's not a burning desire if you put it that way, it's something, it's a tool to be used now and again. I don't really spend an awful lot of personal time, you know, surfing round the Internet.* (Douglas)

Their attachment to mICTs appeared weaker, reflected by reduced proximity requirements and being comfortable switching them off.

Purposeful non-use

Being accessible to others through mICTs made some participants feel uncomfortable and there was a 'Need to be uncontactable':

> *Sometimes when you want to be left alone, you really can't be left alone, because there is always a piece of technology that they can get you on. You forget to switch something off and they've got you on that, and you're like, 'Oh no,' that's the only disadvantage but that doesn't happen often.* (Kelly)

At times, it gets daunting, if that's the word. It's just repetitive. There are days when I don't want any contact. (Jeremy)

While most participants used mICTs for social networking, a few distanced themselves from expressing or representing themselves with an online presence, having opted instead to be 'Non-users of social networking sites'.

Everybody knows your business, people are misusing it, things were coming up. When my dad died last year I was seeing it in front of me. It actually made me worse. Used to, a while back, my dad, there was things coming up. My sister put on different photographs, different things. Then other people's comments expressing things to my sister and it was just getting to me. It was getting out of hand basically. (Jeremy)

The option of being uncontactable facilitated some patients' preferences for finding 'Real-world', instead of online or digital solutions, to manage their wellbeing. They could take or leave their mICTs and appeared tethered to them with 'Looser ties'. Being uncontactable appeared to be a need, and, at times, mICTs were a barrier to this, which created a volatile relationship:

Even if it's my mum. There's times that I just cannot be bothered even picking it up and talking to me. But I'll text back. And there's times that I won't even answer it at all for days. I won't even reply back, I'll just switch it off. It just seems to, I can't predict it, it's like one day it can be so okay. The next day it's that I cannot be bothered looking at my phone at all. So I just have to say I'm fine and switch my phone off, I have no other way of controlling that. (Jeremy)

The ability to express and receive warmth and comfort through face-to-face contact was important for patients to feel more connected with people:

Warmth. I don't know I feel more connected, you can read people's expressions and laugh together and you can't laugh together on a site. Well maybe you can but I don't know, I can't even do the smiley faces on my phone, things like that. That's the kind of thing I'm not very good at. So I'm probably colder on it than a lot of people because I don't have all these little functions that people do with. (Janet)

MICTs were still used to arrange meetings, such as going for a coffee, however, what counted most was the physical one-to-one contact with others:

I've tried to connect with people, like real people; friends, phone calls and meeting people. I need to see people, that's just who I am I think, I'd get quite low if I just communicated with people sort of by cyber means. I prefer to go and meet someone and have a coffee than go on forums or even make a phone call. I will phone, but my talk choice would be; what are you doing today? Do you want

to meet up for coffee? But in terms of contact I prefer face-to-face contact, like I said before, I'd much rather speak to a psychiatrist face-to-face. (Janet)

The non-reliance on mICTs to feel better was demonstrated by some patients through their engagement in activities, such as going for a walk or expressing oneself through art. There appeared to be certain times or situation when mICTs were purposefully used less often, for example, in social situations, when visiting friends and family, or in meetings. Although their use of mICTs could decrease at times, most participants stated that they rarely switched their mICTs off. They preferred instead to silence their mICTs or use apps to filter incoming information, only triggering responses if these interruptions were deemed important.

Survival Tool

Patients' mICTs became mobile survival tools; digital platforms which fulfilled varying functions and uses to enable patients to self-manage. MICTs provided people with a digital Swiss army knife; a digital 'Survival tool'. Their 'Survival tool' became embedded within their lives and was used in ways that reflected their daily living. The 'Duality of engagement' facilitated patients to use their 'Survival tool' to look outwards and seek information on the Internet or to receive help from others on forums. MICTs also helped patients look inwards and reflect, which increased awareness of their condition and identified ways in which they could look after themselves. People held their mobile technology in high regard, viewing them as key to their recovery and something to be taken with them and switched on for most, if not all, of the time. The smartphone appeared to be the main mICT that people used and took with them when they left the house. It offered similar functionality to a tablet-PC and laptop, however, it was more portable and convenient to use while on the move. The smartphone provided patients with the ability to combine activities that were once separate into one device. Their mICTs provided patients with digital platforms, enabling ways of 'Finding keeping-well adaptions through mICTs', ways to 'Facilitate emotional and mood regulation' and 'Information gathering'. MICTs were mobile, digital survival tools, and, for patients recovering from mood disorders, a survival tool to manage one's life:

Oh most definitely a way of keeping in contact with people without actually having to leave wherever you're feeling comfortable at that time. It's your friend, your family, your professionals, there's a link to everything when you don't feel that you can deal with that. Your Facebook will bring you a smile, YouTube will bring you a distraction, phone conversation with a friend will bring you a bit of relief.

> *But to have to go out and seek that out might be much harder task than having it in your pocket.* (Greig)

The technology held potential to facilitate patients to meet varying needs. Smartphones were being used for a variety of reasons when accessing the Internet, such as; managing finances, seeking entertainment, checking or retrieving information, communicating and shopping. What were once separate activities, requiring a physical presence, could all be completed online through an mICT. Apps were being downloaded and used by participants for varying purposes. While the apps that patients mentioned could be associated with self-management, for example, a weather app to check the weather before going for a walk for exercise, or a music app to help play the guitar for distraction, the participants did not discuss using specific self-management apps for mood disorders or provide examples of these.

Finding keeping-well adaptions through mICTs

'Being digitally disconnected' compelled patients to discover their own ways of using mICTs to support recovery from their mood disorders. Their mICTs became important survival tools to support self-care and self-management, for example, they were used for keeping engaged and occupied:

> *I keep my brain stimulated by doing crosswords and things like this and games online and I do exercises. I've got arthritis and I do exercises online as well with my computer, my laptop.* (Alice)

MICTs offered distraction from intrusive and ruminating thoughts:

> *Why do I play the games? To occupy my mind so that my thoughts aren't racing through my head. Because you're not thinking of your unhelpful thoughts you're concentrating more on what's going on in the game.* (Sarah)

> *I just sat playing games and started feeling a lot better and it was my partner said to me, 'You're happier when you're on your phone or you're playing your games.' I was like, I never even thought of that. Then it was him that pointed out that I was starting to, I didn't look as down as what I did, I was starting to pick up, so yeah, playing games has really helped me.* (Kate)

The use of mICTs appeared to reflect people and their recovery as they became embedded and an established part of their lives. Gaming also provided patients with distraction from suicidal ideation and helped to keep them in the moment. Patients focused attention on the games they were playing, rather than on their intrusive thoughts, and the mobility of mICTs enabled patients to use them wherever they were. Patients made use of the in-

built functions of their phones, such as music players, calendar and alarms. Smartphones were used to assist people with sport, for example, listening to music helped motivate them when running, and certain apps helped with training. Although patients were aware that they could engage in self-management activities without mICTs, their use was facilitative and promoted their persistence in helpful behaviour:

> *Probably the jogging lifts my mood even if it's a little bit more short-lived and the yoga. I'm using the technology to assist my recovery. I mean obviously I could meditate, you could meditate without an application and you could run without Couch to 5k or music. I can't see, at the moment, I don't see a day me not meditating and doing yoga but maybe, maybe that day will come but not in the short-term.* (Janet)

Patients used mICTs in their daily lives in a variety of ways, one of which was to support their mood disorders. As an example, a CMHN recommended her patient use a relaxation CD, however, the patient was already finding apps to use to help her with sleep and relaxation:

> *I've done a lot of mindfulness work and things so I can tell when I'm starting on a whole negative and unhelpful trail of thinking so it's a case of I can distract myself from that with the app and just pass the time.* (Susan)

MICTs were used as a tool to help keep people in the moment, supporting them to regulate their emotions and increase their self-awareness, particularly in regards to their mood disorders. Patients had identified some advantages of bringing mICTs into their recovery with most considering them to be the preferred tool. Patients used their mICTs in ways that fitted into their own lives in order to practise 'Self-care through mICTs', such as; 'Gaming for distraction', using a 'Weather app for walking' and 'Meditation, mindfulness and yoga' for relaxation. The in-built functionality of mICTs and downloadable apps helped people use their mICTs as a 'Personal organiser' to help them remember appointments, to remind them to take their medication, and to give them prompts. Participants described using their mICTs in a variety of ways to perform self-care behaviour, including, but not limited to: distraction, health and fitness, supporting talking, symptom management, music, and the use of apps:

> *I use it for Facebook, online banking, research, I look up various things. Sometimes I look up medication or I look up side effects of this new diagnosis and things like that. Sometimes use it for contacting Samaritans. Game playing; Farmville, Royal Story, a game called Odd Socks. To occupy my mind so that my thoughts aren't racing through my head. You're not thinking of your unhelpful*

> *thoughts you're concentrating more on what's going on in the game. It kind of blanks me out. I tell you what else I use it for, Boots the chemist. When my medications in stock, I get a text from the chemist to say my medications ready to pick up.* (Sarah)

If mICT software or hardware did not meet the requirements of patients, then 'Work arounds' were found. For example, Cal used a navigation app on his motorcycle, which quickly drained his smartphone. Therefore, he carried a portable charger that his smartphone could be plugged into when on trips, and this enabled him to continue a behaviour he found important to his recovery.

Patients with mood disorders who commonly experienced symptoms such as; reduced motivation, reduced energy levels, reduced concentration, and short term memory loss, found that having apps that required too much effort and time were unhelpful. These apps were viewed as needing discipline and consistency, which quickly led to tediousness and attrition. When using apps, patients found generic designs unhelpful, as a tick-box approach did not enable them to describe their feelings or experiences. Their use of mICTs for self-management was potentially both conscious and unconscious in terms of purposeful use. For example, people used their mICTs to view recipes to help cook healthier meals, which is an example of a helpful 'By-product of use', whereas others purposefully used their mICTS to aid sleep or for distraction. Cal found that using his smartphone allowed him to update and attend to his business page on Facebook and his business website. He had a special agreement with the Jobcentre that he could work up to sixteen hours a week and still receive disability benefits, as working, for him, was a strong contributing factor to recovery. One patient used a note-taking app, which he found to be very useful to mitigate the detrimental effects that his mood disorder had on his memory. He was able to write lists on his smartphone that could be looked at when required and edited before being deleted as he completed his tasks. As a 'By-product of use', evidence of self-management, he used an app that was not directly created for mood disorders, however, he used it in such a way as to minimise the effects that his symptoms had on his daily life.

Information gathering

MICTs facilitated patients to access information on mental health to help them understand their conditions, their medication and approaches to recovery:

> *In terms of general health I find it quite interesting to be able to look things up and learn a bit more. I find dealing with the mental health problems I've got*

easier to deal with if I understand them better. The problem is that there's a lot of good information, there's a lot of bad information as well. Look at things like the NHS website and looking at information about illnesses and trying to understand them a bit better and trying to understand how the brain works. I do quite a lot of personal research trying to understand things a bit better on there. I tend to do that through my phone or tablet. I don't like not understanding what's going on. For example, I stopped taking an anti-depressant about eighteen months ago and I had really quite awful side effects from when I stopped taking it. It was really helpful to understand why those side effects were happening and how long they were going to last and what the best things to do to take them off. That kind of information was available on the NHS site, so it's quite useful for things like that. I think you can go a long way to help yourself deal with mental health problems by understanding it better. (Brian)

MICTs were used to access online support forums, places where patients could talk to people going through similar experiences, which helped them to feel better. Advice from peers was viewed as being more genuine than that provided by professionals. Patients acquired new knowledge about mood disorders from existing posts and posted their own queries, helping them to 'Learn new coping mechanisms'. Reading posts from other people who were going through difficult experiences helped the patients to put things into perspective:

> *There's loads of different groups you can join; there's the BPD support group, I'm on that, there's a self-harm support group and there's an anxiety and depression support group. I'm Whatsapp'ing at two in the morning, it's my lifeline, I have to sleep with my phone under my bed. I use it for my alarm clock because otherwise I can't get up. It's my lifeline to get in touch with my dad if I'm in a crisis or if I needed to phone NHS24. There's been times that when I've self-harmed or overdosed I've needed my phone to phone an ambulance, I need it for emergencies.* (Gail)

Having this link to Services and support encouraged patients to continue with their recovery; as compared to other patients who did not use mICTs as comprehensively, they felt in a better place. Being positive for someone else on an online support forum helped some patients feel better about themselves. Therefore, accessing online support forums through mICTs provided patients with a survival tool and enabled people to source local community resources and opportunities to help look after themselves.

Disconnection of needs

Patients with mood disorders who used Services, and the health and social care professionals who delivered Services, felt that there was a 'Disconnection of needs'. MICTs' full capabilities where not being harnessed due to the disconnect between patients with mood disorders and the services that supported them. Professionals and

Services were restricted in terms of use, understanding, and their incorporation of mICTs into care. Although patients and professionals appeared to want similar things from their mICTs there was a clear disconnect in the communication and use between them:

> *There's nothing there to say this is how you can use your mobile to get hold of different people [health and social care professionals]. When you're not well the obvious is not obvious, it's not obvious to message somebody.* (Susan)

> *I did it myself to be honest. I looked at things with benefits to me on these devices and the negatives; I've taken what I would view for my own situation as positive aspects of using this technology and sticking with it.* (Andrew)

> *They [patients] are already doing it, that's the thing, and so are the people that are working within the NHS. Yet there's this disconnect between what we can do normally and what we know is possible. You have to sort of alter yourself back in time a little bit to what the NHS can currently do in the hope that maybe in ten years' time we'll be with the rest.* (Charlie)

> *No, it wasn't through support from any mental health services, it was by stepping back and looking at how other people were using it [mICTs]. Pretty much through my own mistakes but also through looking at other peoples' patterns of behaviours. Thinking, 'My goodness,' it's not just people with for example, mental health problems that are needing support, boosts to their self-esteem, it's everybody.* (Peter)

> *No, not at all, not at all, no, not at all. I wouldn't even know how to go about it, I've never, I don't think I've ever really been given the offer. No, no, no I haven't. I've never been given the offer really.* (Valery)

This disconnect was highlighted by the data, as the theoretical categories 'Outsourcing of needs' and 'Management of needs' were created solely on patients' responses. The theoretical category 'Disconnection of needs' synthesised data from both participant groups and is presented below, along with its sub-categories and interrelationships (Table 20).

Table 20: Disconnection of needs

Disconnection of needs			
Being digitally disconnected			
Patient and professional perspectives		Future design of services	
The workplace	Interaction with services	The future digital workplace	Aspirational interactions with services

Being digitally disconnected

Using the metaphor 'A third hand' to describe patients' relationships with their mICTs was an important point in the research process. Humans' use of their hands facilitated their evolution, therefore, Candy likening her relationship and use of her smartphone to 'A third hand' was significant. It captured the importance that her mobile phone had in her life; it was a multi-use tool and essential for allowing her to do things. Whilst not being two pairs of hands, the smartphone gave her additional capabilities. Therefore, to explicate the breadth of this concept, 'Being digitally disconnected' metaphorically handcuffed 'A third hand'.

Patient and professional perspectives

Interaction with Services

Patients with mood disorders who used mICTs tended to have smartphones, tablets and/or laptops. They were aware that their hardware was more advanced and that their use of mICTs was also ahead of that of that of their professionals:

> *I'd probably be able to teach her [CMHN] more than she would be able to teach me. I showed her the Facebook page and shown her the technology that's available, and Facebook, there's always different pages you can find that will help different things.* (Tricia)

Patients used a range of mICTs, both in terms of specification and price; from basic entry-level technology, to the latest smartphone or tablet. However, their professionals were equipped with basic mobile phones. In terms of choice, patients were limited in their communication options due to the limited functionality and usability of the information and communication systems used by Services:

> Researcher: *If you can think back with community mental health teams and mental health services through the years then and up to date too, is there anything that you'd like to be different about how you interacted through mobile technology with services?*
> Cal: *Well I would like to have been able to interact with them.*
> Researcher: *Right so you weren't able to?*
> Cal: *Not really.*

> Researcher: *Do you use your mobile, like your smartphone or your laptop to communicate in any ways with your mental health services or NHS?*
> Sarah: *No because I didn't know you could.*
> Researcher: *So at the moment it's mainly telephoning?*
> Sarah: *Telephoning yeah.*
> Researcher: *Even though you don't like telephoning?*
> Sarah: *Yeah.*

Therefore, patients recognised a digital disconnect in regards to the sophistication of mICTs they used in comparison to those of their professionals. They also recognised the incompatibility between them both in terms of desired capabilities and communication options. The way Services were designed to communicate appeared unhelpful for patients as they could find it difficult to talk on the telephone. Reasons for this included; feeling judged, feeling under pressure, and not having enough time to construct what they wanted to say due to the immediacy of talking when on the telephone:

> *I hate the telephone, particularly now, I hate having to talk to people on the telephone. You just don't get any or enough feedback; how they're feeling, how they're reacting to what you say, I just find it horribly impersonal. Written or text is impersonal but I can be precise with it. It's the language that's used, I'm more able to express myself because I'm not kind of rushing to get things in.* (Cal)

The main approach open to patients when communicating with Services was through telephone conversations. Patients who did not like using the telephone to speak to people found that when they contacted Services they were often met with a voice machine offering options. The stresses of using a telephone led to difficulties in understanding automated options. This required re-dialling and listening to options again, and, if they were only able to leave a voicemail, patients preferred terminating the call rather than leave a message. Some of these stresses appeared to be caused by patients holding pre-conceptions regarding the pressure that professionals were under in terms of workload. Therefore, patients felt pressurised regarding the amount of time that professionals could devote to them, the time that they had available for speaking on the telephone, and the

number of calls that they could make to Services. This resulted in them having unhelpful experiences when contacting Services:

> *Out of hours, I tried that maybe twice, I left my message and I thought, 'I'm kind of struggling here and I'm needing help,' it wasn't serious help but I was still needing help. I found it frustrating, I left my message that night and I think it was after maybe six or seven o'clock at night and the next day there was nothing back. Even a text back from somebody saying, 'We've got your message, how are you?' It played on my mind.* (Jeremy)

> *I don't use my phone to actually phone anyone. It is difficult to phone I just find it difficult to pick up the phone to speak to anybody when you don't know who you're going to get at the other end of the phone and you're possibly having to wait in a queue as well. Like trying to set up an appointment to see my CPN after he was born. I would end up in a queue and then he would start crying and I would have to hang up so in the end we sort [of] resorted to her sending a letter out with an appointment date.* (Susan)

Having communication options were important to patients for informing professionals about how they were, or if they required emergency help. The apparent rigidity, inflexibility and unawareness of patient communication needs by Services reduced the person-centeredness of the organisations. An example of this was the decision to place the option to leave a voicemail last on a list; therefore, patients who were uncomfortable using a telephone had to wait through the entire message:

> *I think when you phone it's five options and it's the sixth, the last one is the option to leave a voice mail, it's the very end. The first time I did it I didn't even get to option three and I hung up because it was going on and on and I thought this is no use. I thought I dialled the wrong number so I had to look at the number again and this was the right number so I did it again and it gave the options at the end of it. I was getting more and more wound up.* (Jeremy)

Patients found that being contacted just before an appointment was due to start, to change its time, before further changes were again made, could affect their routines, which were an important component for helping them feel in control:

> *My day's been disrupted because I didn't know what was happening. I plan my day, like Bethany's (CMHN) going to be here at this time. Then five minutes before the appointment a phone call from her secretary, it'll be eleven o'clock. Then it was another appointment, then it was another phone call from her secretary, 'Could she change it to this afternoon?'* (Tricia)

When secretaries telephoned patients to change appointments, patients were left with a sense of impersonality from Services:

It's not personal when their secretary phones and says I'm going to have to change appointment or she's running late and then one day it was changed three times. It feels very impersonal, it'd be different if it was Bethany (CMHN) that said, 'Right, I'm running late Tricia,' because she knows me, the secretary doesn't know me from nothing. (Tricia)

Professionals could contact their patients when out in the community using their basic mobile phones. At times, however, their administrative staff would contact patients using landlines, resulting in stress for the patient due to them having received a call from an unknown number and the necessity of having to speak to administrative staff. Therefore, the existing hardware was not being harnessed to its full potential and patients were left feeling that their communication with professionals was impersonal. This was reflected in their opinions regarding the lack of communication options open to them to communicate with Services. Professionals appeared to choose some patients over others when offering their work mobile telephone number, which also varied in the timing, frequency and use of mICTs. This suggested a lack of standardisation or guidance for professionals when using mICTs with their patients. Patients felt that mobile communication from professionals was inconsistent and depended upon an individual's decision rather than on consistent policy:

To be honest not many of the community health team give you their mobile number. (Janet)

They [professionals] do have mobiles but they just don't seem to use them. I think some of it will depend on the person. (Susan)

The method suggested by professionals to their patients for retrieving information or engaging with material appeared outdated. Professionals would recommend a website for self-management, however, the information and technology was not new, and the interactivity lacked imagination, leaving patients questioning the relevancy. Sometimes, when patients accessed NHS websites they did not work well compared to other commercial sites. An example cited was Moodjuice, described as a passive site where information could be gathered but where there was no interactivity, which meant that it was unlikely that the information would be utilised. Patients who had been advised to use relaxation CDs by their professionals commented that they had already found apps that were better at doing the same thing:

Moodjuice, there's none of that advice on there. It tells you this is anxiety and here are some things you can do but there's very little. I don't think there was any imaginative technology apart from relaxation CDs. Who has CDs these days?

There was nothing on there that was really relevant. This is not my first depressive episode, I'm backwards and forwards. I've heard all the things you're supposed to do before, but it gets very hard to remember them, in the moment. That's where technology comes in as you can set reminders for things and you can use it to tune out sounds. (Adam)

The advice provided and delivery of information were deemed to be unsuitable. This was due to lack of guidance, impersonality of software, the poor functionality of the recommended NHS websites, and being recommended outmoded forms of media, such as CDs and DVDs, for self-help. This situation appeared to reflect how patients, the end-users of technology and Services, appeared to be further advanced in terms of the technology that they used and what they used it for. Patients regarded professionals as being in the 'Digital stone age' and professionals acknowledged being at least 10 years behind their patients in terms of mICT use. Through circumstance, patients had left their professionals behind and were advancing alone in negotiating and navigating mICTs in their lives:

Researcher:	*Have you been given any advice by mental health services on how to use technology and what to use it for? What Internet sites are good or what apps are good, things like that?*
William:	*To be honest with you I don't think they know.*
Researcher:	*And how did you, how did you work that out?*
William:	*I figured it out myself, same as everything, I just figure everything out myself.*
Researcher:	*Okay, so in terms of using your smartphone to help you manage depression it sounds like you've figured it all out yourself?*
William:	*Yeah pretty much.*
Researcher:	*Services haven't come in and said look, let's sit down for an hour and talk about technology and what sites are safe to go to?*
William:	*They haven't.*
Researcher:	*Would that be helpful if maybe they had done?*
William:	*Yeah, yeah, course it would. It would be helpful to anybody if they were to come in and say this is a really good website to go on if you're feeling low and you're wanting to chat with somebody.*
Researcher:	*So you've had to figure out what works for you by yourself?*
William:	*Basically yeah, pretty much.*

Patients who had been early adopters or who had a keen interest in mobile technology had developed 'work-arounds' for issues they faced regarding interacting and communicating digitally with Services. Patients advised their professionals on what websites or apps to use and assumed that mICTs were too specialised for the professionals to use. Patients held insight as to why Services had not harnessed mICTs and the potential

barriers that might have caused inertia, such as ineffective management, cost and culture issues:

> *More and more, everything in healthcare is being ran by managers, accountant type managers with very little understanding of the actual function of what their departments do. Obviously, management is older as well, probably people my age who aren't mobile or IT savvy, so there's going to be inertia there.* (Cal)

> *Researcher: So there's not necessarily a texting or a mobile type service?*
> *Susan: There's not the mind-set there yet to make it available.*

It was the less confident or experienced user who had experienced issues harnessing the potential of mICTs, whether for their own use, or to interact with Services. Therefore, patients appeared to be finding ways to make their mICTs work for them, despite the design and delivery of services.

The workplace

Health and social care professionals saw the potential and value that mICTs could add to patient care; their mobility, functionality, usability, accessibility to information, and location-independence:

> *You have to be contactable for your own safety as well, you know, so people can contact you so no, there's not an option. The only time, like yesterday, we were on training, you put it on silent or switch it off but when you're working you're to be available if need be. I've been in quite a lot of situations when I've been out with clients and it's been really handy because whatever we've been discussing or they might produce a letter and you could be in a café so you can just deal with that situation there and then. Phone up say the DWP, find out why they haven't been paid their benefit money or whatever and you don't have to come all the way back to the office to do that, you can do it in situ. And in situations where you've gone in and somebody's presenting quite unwell and you're not too keen to leave them. The risk is quite low against harm to yourself so you would communicate back and say look could somebody maybe pop up or could this person be seen so it gets things moving quickly. It's a security blanket for everyone. If you go in to see them knowing that they might have been ranting and raving the week before, but not at you, which a lot of people do. They're angry at a system, or at a situation, and because they don't see a lot of people they sometimes aim it at us, not directly but it's sometimes a bit scary when you go to visit someone.* (Audrey)

Whether a health and social care professional incorporated and/or discussed mICTs with their patients appeared to depend on the professional involved. Patients were considered unlikely to use mICTs for self-management unless prompted by a clinician, a view which countered patient perspectives; a reflection perhaps, of the apparent lack of resources, training and support, and ambivalence towards the use of mICTs by Services:

The majority have them have mobile phones. Quite a lot now I think have moved on to tablets but there's a still a lot of the older generation don't have tablets but they've got mobile phones. I would say probably everybody's got a mobile phone that I know about. How they use them varies. I think the older population are probably more into receiving calls than making calls. The making of the calls is keeping in contact with family and friends, things like that. With the younger generation, it can vary enormously. I have said to them that there are programmes available on the Internet to help people with depression but I've not had any of them show any interest in them. I mean that's all I've said to them but none, nobody's picked up and said, 'Oh is there? Really? What is it and how do I get it?' I think it's like anything else in life isn't it, there's pros and cons to everything and I think it's the same with this. Because again, how did they manage people with depression before mobile technology? I think there's pros and cons. (Josie)

The two main reasons given by health and social care professionals for not harnessing the full potential of mICTs were; a lack of up-to-date hardware (supplied with mobile phones that could only phone and text), and the bureaucracy/'red-tape' within Services:

We're all allocated with a mobile phone, it's not a smartphone, and mine's quite an old phone. I got that the very first day I started the job in 2004 and because I haven't lost it, broken it and I haven't asked for a replacement, I've just kept it. The same phone, yes, because it's only used for phoning and texting. I think sometimes we're a bit lagging behind because of all the policies and rules and regulations; you're not allowed to give your work's mobile out to clients, you're not really meant to give them your email. Well for the NHS it is and I think the Council might be slightly different but I think it's a barrier sometimes. I think it's the Council and the NHS that have to maybe look at that and allow the clients, patients to communicate with use in other ways. (Audrey)

Professionals cited the possible reasons for this lagging behind as being; data security concerns, patient confidentiality, cost, computer literacy, or the lack of political will by Services:

There's the security issues and having lots of data going here, there and everywhere which is obviously not desirable and not compatible with patient confidentiality. People's technological capabilities; being able to use the equipment, so while that's fine for me, it would not suite particularly some of the older nurses on the ward who find it takes them considerably longer to type than it did to write. I don't touch type, I've never learnt to do that so probably skills that could be deployed and more training of staff, that would be another barrier. (Charlie)

It took me a long time to grasp how local authorities work and it suddenly dawned on me, I thought they're upside down, that they're upside down, that's how it works. The higher up you get in local authority the more important you are and the worse you are at the job. The higher up you'll get, away from the coal face; you're more likely to end up in the Daily Mirror if you're at the coal face making a mistake. So if you're crap at your job it's easier to promote than sack. I mean

it's as fundamental as that. Money can be found for anything when they want it, when they think it's important enough. I think also, sometimes, you're managed by people who don't understand the job you do. You're not managed by people who have a background in mental health necessarily. Therefore, they don't know the needs of the client. They don't know the problems. They don't know therefore what's likely to work, despite having that knowledge would maybe even save money in the longer term. But when you're managed by people that don't understand the job then their priorities are elsewhere. (Josie)

Services provided basic mobile phones for their staff, which were used in basic ways such as text messaging and telephone. For some health and social care professionals, they had perceived a significant change in the way professionals communicated with their clients. For example, a professional who had worked in ward settings for many years felt it was quite positive to be able to text clients in the community. However, this perception highlighted the disconnection between the uses and value placed upon mICTs by Services in comparison to those by patients who wanted and expected much more in terms of communication options. Texting was one communication medium available to patients from a menu of digital communications options when using their mICTs. However, the mode of communication was limited for patients, due to the systems operated by Services and the confidence of professionals when using them:

I know that some of the people that I work with have apps that they use and if that's something that they bring up we would discuss how that might fit with the work that we're doing. When it comes to apps specifically it's not something that I would necessarily feel very confident in specifically recommending. There's just so many out there and it can often be difficult to know what the source is or who's designed them. I'm conscious of issues like things crashing, some apps aren't very reliable. I'm not aware of them having been tested on a large scale, any specific ones having been checked. (Jessica)

This basic lack of functionality affected the mobile nature of professionals' work as they relied upon PC workstations for access to the Inter/Intranet. This meant professionals had to travel to ICTs, instead of mICTs travelling with them to visit patients:

You're trying to keep your electronic records up to date and that's a very time-consuming part of the job. It impacts upon stress levels massively, massively, because if it's something that has to be documented then it means you're often having to stay behind late to make sure that information is on the system. (Bethany)

Professionals were aware that this could have an effect on patient care; as having quick and ready access to the Internet for information, digital copies of material and email, had the potential to make treatment more efficient:

I've used the Internet if there's a query about their medication. I've got the BNF downloaded on my phone so I've used that sometimes. If they run out of medication, if we're querying an increase in their medication, we'll just go and have a look while I'm there. That's assuming I'm in their house, because I do a lot of house visits. If I'm in a clinic and there's a computer then obviously I'll use the computer. Even if I'm in a clinic room and there's no computer then I've got access to the Internet on my own phone. If I'm in other people's houses it's just the quick and easiness of being able to access that information there and then. Rather than going away in my own time to search for these things, make a phone call, get back to them, or just inform them on the next visit. That takes time basically, whereas there and then, it's in an instant, we can have that discussion. We don't have to wait maybe another day, or it feeding into my own admin time to go and search, and then contact them at a later date, which is just more time consuming. (Carrie)

Most professionals were aware that their patients used mICTs and a few had gained some insight into how their patients were using them to help their mood disorders. In terms of the uptake of mICTs of patients, professionals believed that most of their clients owned and used them:

I think the majority of people would have smartphones. I'm not sure about laptops and tablets and things like that. I suppose the good thing about the smartphone is the fact that you can access everything. I think there's maybe just a few clients that don't, they just have a home number. (Bethany)

However, conversations surrounding mICTs did not appear to be purposefully part of treatment and care planning, which suggested that mICTs were not being discussed therapeutically. Professionals had not been given guidance, policy or information on how to approach patients regarding the therapeutic use of mICTs:

I don't think there will be any NHS Tayside policy on texting clients. I get worried because there isn't any official system, there's work-rounds. So I'm aware that staff give patients personal mobile numbers so that they can text their patients. Because they aren't issued with a work's mobile phone so I observe that and that worries me more because that's then dangerous because you've actually got work-rounds. The organisation's giving us mixed messages because agile working is a big policy in Angus. We need the staff to be agile and you don't need your own desk, you can just go anywhere, so that's the message that's coming out. But then we get other messages that you've got to have same day case note write-ups so you've all to return to base and have all your notes written up before 5 o'clock. So we have staff finishing in clinics in Kirriemuir having to drive to Arbroath to their docking station to write up their notes. So organisation has mixed messages. (Brendan)

This had led to ambiguity regarding the incorporation of mICTs into the therapeutic dialogue, as often, professionals relied on 'unwritten rules' formulated within teams to

inform practice. It appeared that professionals knew their patients were using mICTs in helpful and unhelpful ways, and also, that the technology they were using was less advanced than that of their patients. Professionals did not appear to be actively supportive or purposefully engaged in their patients' use of mICTs; rather, their inclusion in clinical encounters was unconsidered. Professionals reported a lack of resources in the community, which had the potential to 'Hinder the recovery of patients', as it lengthened the time required to complete clinical activities:

> *Well it can be quite frustrating if you can't find information that you're looking for, it just stops working or it freezes. You've got the bog standard sort of texting and things like that so I don't know, I just think that it can interfere with progress or communication and things like that as well. If you're doing a bit of work together and things are constantly getting in the way, like if you're wanting to access one of these sites together, it can hold things up I think.* (Bethany)

Professionals were aware that, with their organisations' moves towards electronic patient records, the hardware provided to them to fulfil their work in the community was not fit for practice. This was viewed by the professionals as an important factor and an omission by community services. Professionals considered their use of ICT and mICT technology to be under-resourced in terms of access and functionality in the community. Professionals accessed their digital workplace through PC workstations in fixed locations. These were described as slow to start up, experienced differing operating speeds, unreliable connectivity to the Internet, and not all clinical rooms were furnished with them. When in the community, in transit, or when in people's homes, they used their Service-provided mICTs, which were basic mobile phones that offered texting and telephone functions only. This provided evidence of the digital disconnect in terms of hardware between professional and patient in the type of mICTs being used. Using PCs required professionals to be mobile to find fixed workstations, rather than the technology being mobile and moving with them. This constraint limited efficiency, as professionals were required to travel to PCs to update clinical notes, access the Internet to find information, or access their Intranet, rather than being location-independent through using mICTs. Unless professionals were in clinics or hospitals, they did not have access to the Internet or the software they required. Therefore, as Services transitioned from being paper-based to EPRs and adopted agile models of working, the mobile nature of community working was being affected by a lack of adequate resources:

> *They're only in some of the health centre rooms, depending on what room you get. I'm lucky the times there is a PC in the room but if you go into a room*

somewhere there's no PCs in there, so if you're lucky enough to get a room with a PC, a clinic room, then that's fine. I would say, probably the odd chance in a clinic room there might not be one depending on the type of clinic it is. (Jennifer)

Professionals involved in direct patient care were provided with basic mobile phones that had no touchscreen capabilities, which could only text message and telephone. Although equipped with basic mICTs, professionals tried to make best use of the hardware and software at their disposal. Professionals could return calls to patients when out of the office or warn patients of potential delay through phoning or text messaging:

> *If I'm out and about clients have my mobile number so they'll often phone me. I might have to phone them too when I'm out and about because I've been asked to contact them by admin staff. So if they phone looking for me and I'm not back in the office until last thing I'll make calls from my mobile to patients. I actually use that quite a lot. Sometimes I'll text patients to say I'm running ten to fifteen minutes late, I'll just pre-warn them that I'm going to be late or patients text me to cancel appointments or just to pass on little bits of information.* (Carrie)

To accommodate their patients' requirements, some professionals used their personal, more advanced mICTs when the functionality required was beyond the limits of their work mICTs. Professionals used their own smartphones to access apps and information on the Internet during community working and home visits to check medication for patients, manage care, and to deal with housing issues and other social problems. Professionals described their 'Twentieth century use of technology' when discussing the hardware and functionality that they were supplied with for communicating and supporting their patients. There appeared to be 'Lack of training, policy or advice' for professionals on how to use mICTs and how to communicate through them with patients:

> *With texting and everything I think that was a step forward but I think we still need another couple of steps forward before we're caught up with the rest of the twenty-first century.* (Bethany)

> Researcher: *Okay, I'm wondering how you might use mobile technology in your role?*
>
> Jessica: *It's not something that I would focus on specifically so I probably don't as a rule necessarily ask people what mode their going to access the Internet through but I would discuss the use of Internet resources with people. I suppose I might recommend specific websites that I would view as reputable sources, particularly if I am aware that somebody is accessing the Internet. I'm aware that not just in mental health but there's so much information on the Internet that doesn't confirm reputable sources it's something I'm quite conscious of so I would probably be quite specific in what I would recommend and have a relatively limited range of*

websites that I would direct people to. I probably wouldn't recommend anything that I haven't specifically looked at myself to check the content of it. But as I said, I wouldn't be necessarily asking somebody about, for example, whether they intend to use their phone or a tablet or laptop to do that.

No other mICTs had been provided to frontline staff other than basic mobile phones. However, 'Notable exceptions' were consultant psychiatrists, senior clinicians and managers who had access to mICTs with improved functionality, such as smartphones and laptops, which could access electronic patient records:

I use an iPad and also use an iPhone as well. So the iPhone gets used for emails essentially, like when I'm out and about from the office. The iPad I don't use as much as what I thought I would because it's limited in terms of what you can use it for I've found. So I have downloaded some apps, the likes of Word and things but it's difficult, I find it difficult to work from the iPad in terms of creating documents so I end up lugging about my laptop with me most places. (Kloe)

I use a tablet it's supplied by the NHS almost predominantly for emails. I will use it occasionally for searching websites. I would use it more for websites but I have difficulty getting reception so it's mostly just emails I use it for. (Brendan)

A minority of professionals were aware that their patients accessed and/or received social support through their mICTs and viewed this as helpful behaviour. Their patients had identified solutions to social isolation; a situation commonly experienced by their patients who found leaving the house and communicating with people difficult. Professionals also knew that their patients accessed and, in some instances, provided social support, through online social networking sites and online support groups/forums:

Carrie: *I do think it's helped because I know a lot of them don't go out; definitely isolate themselves more when they are depressed. So I do think it helps with interacting with their social network although they're not leaving the house.*
Researcher: *So people who have depression can isolate themselves sometimes so using mobile technologies helps them stay in touch with people outside?*
Carrie: *Yeah, yeah.*
Researcher: *They might not be able to do as well without?*
Carrie: *Yeah, yeah, very much so, yeah. Especially with regards to their depression and quite a lot of them do that. They know I'm going to read that and that makes them feel better.*

I would say even the sort of clients of an older generation, they will definitely use their mobile phones to keep in touch with their family and to be contacted by ourselves. Most people I would say, we have got a mobile number for them. (Jennifer)

Professionals acknowledged that their patients felt better knowing that they were at the other end of an mICT and knew that when patients sent them text messages this could improve the patient's mood, even if the patient did not expect a reply. Professionals were aware of some challenges that their patients could encounter when using their mICTs and these surfaced during clinical appointments. Patients who had visited websites for health-related material at times required reassurance that they did not have certain conditions. Also, access to online medical information led to patients routinely questioning their treatment and suggested alternative treatments options that were not best practice. Community mental health nurses and occupational therapists were aware of how the severity of their patients' mental health could affect their use of mICTs. They had identified that their patients would stop using SNSs for periods of time when they were paranoid due to reading troubling comments and posts online, however, as they recovered and felt better, their patients would start using SNSs again. Charlie expressed being aware of the potential dangers of online media:

> *I think there is the potential for it to go badly. The Samaritans app that they had, that didn't really sustain, it was open to a lot of criticism. I think the paradigm that they used relied on a lot of good will. I think it underestimated the negative side of social media as well; the bullying, the stigmatisation, the more difficult and harassing context that people can have. It's not all sunny and rosy and these are wonderful tools; there is a significant detriment to them or potential for that to go wrong.* (Charlie)

Therefore, there was some awareness regarding patients' use of mICTs for self-management purposes, however, there appeared to be little clarity regarding how to best make use of this behaviour for self-management support purposes. Some health professionals did discuss mICTs with their patients, although these conversations appeared to be the exception rather than the norm:

> *Quite a lot of them use them for games so that's smartphone and either laptops or tablets. I think a large part of that is for something to do about distraction because that's a coping strategy to help them with mental health difficulties. I think some of them are using them for searching for information. I do think the majority of them are using them for games that I'm aware of. I do think it helps them with that aspect and just the games. It's actually quite a number of clients use games to help them with distraction and just not thinking about their depression. Although, I guess, they're playing their games which are used on mobile technology, it's usually on their Recovery plans and part of their Risk Management plans. They should use playing games as a form of distraction, so actually, it does come up a lot but I guess it doesn't necessarily directly state that it's a mobile technology that they're using, but we've specified games.* (Carrie)

Some professionals therefore, appeared to be aware of the therapeutic potential that mICTs could offer to patients. However, there appeared to be a lack of conversations regarding how mICTs were used by patients, and the topic did not appear to be something that most professionals had thought about, including in their therapeutic encounters. If patients were using SNSs or apps, their professionals appeared, overall, to be uncertain about why and what benefits they received from such behaviour; again suggesting a lack of communication between them. The full usability and functionality of mICTs used by patients were not being harnessed by professionals in terms of incorporating the technology into care and as a method of communication between provider and consumer of Services. People with mood disorders were using and incorporating mICTs into their lives and wished to move forwards in their recovery using the technology. Patients were becoming experts in using mICTs to fulfil unmet needs. However, they were exploring these new ways of using mICTs on their own, and, although they did so optimistically, both the professionals and the patients foresaw similar versions of a digital future; where Services could be constructed to help meet both of their needs.

Future design of services

The creative ideas and visions of patients, and health and social care professionals, about how future Services could harness mICTs, essentially captured the need for person-centred care. The status quo did not meet either of their digital information and communication requirements.

Aspirational interactions with services

Patients preferred that the different methods of communication were more readily available to them, such as text message instead of telephoning, or Skype instead of one-to-one meetings. Patients were aware of 'Being digitally disconnected', however, they saw potential and opportunity in mICTs to provide them with more choice, control and interactivity in regards to how they communicated with Services and the use of information for their recovery. Patients discussed their optimal input from professionals as usually being face-to-face, in-person appointments. This was seen by patients as providing them with a sense of priority and importance by their professionals, valuing their physical time together. However, patients appeared realistic, recognising that this was not always achievable, and therefore, acknowledged that mICTs had the potential to offer a second-best option:

I can actually see that she's making me, this is my priority time, and when she comes out and sees me every two weeks it's like she's so friendly, she's so helpful and she just sits there and listens. She'll ask, 'What's been going on and how you feeling?' and I'll say, 'Well a couple of weeks ago I had a really bad day, Tuesday and Thursday of that week, didn't get out of my bed at all, and just couldn't face anyone,' and she'll sit there and we'll go through some steps. She's like, 'What do you think started this?' and we'll go through that, having that one-to-one is always going to be better. But even though if it did go to Facetime or Skype I could still see her, that would still be alright because she's still making me the priority for my appointment time, she's not getting disturbed, it would be so much easier. (Tricia)

Patients wanted their professionals to use mICTs to provide them with an interactive, personal and timely service, one where patients were taken seriously and viewed as equals by professionals; and ones that professionals were proficient in using, and knowledgeable in relation to mobile technology. Improved functionality was important to patients and they provided technological solutions for issues that they faced when interacting and communicating with Services. The provision of a twenty-four hour, seven-days-a-week, digital service, using 'A local website' with online support available from both professionals and peer forums, was seen as being ideal; one where patients could access medical information, use forums, upload notes and mood diaries, and view summaries of meetings with their professionals was desirable:

I would just prefer to keep it electronic. Even if it is not meeting up with her [CMHN] but scheduling Skype conference calls. I think it would be good because you'd just be able to speak to them over the computer or over the phone like Facetime or Skype and maybe I wouldn't have to clean up my house to make it look really tidy. It just saves them the hassle; if they're based say in a different town and they've got to travel all the way to see you it would make it easier for them and the patient. (Kate)

For accessing support, if there is a framework there for you to do it, then if you can get into the habit of doing it, I would definitely use it. The ideal would basically be almost like a virtual call-centre so rather than having to phone and speak to somebody, have a system where you can message and you can get either an email back or through screens with things to try. (Susan)

It does tend to be more at nights if I'm going to have a really, really low point. It will be more at nights once the kids are off to bed because my mind's kept busy through the day with the kids. You've got more time to be thinking about things, that's when you could start to feel quite low. Having the kids through the day is great to keep my mind occupied; definitely evenings, definitely night times when they're in bed, that's when there's nothing really available. I don't want to be pestering folk that have got their own families and lives so I don't do anything. The idea of some sort of app or something would be absolutely fantastic. If you could go onto your phone and go to games if they had something like that for

mental health; something with sort of advice or something where I'm not having to put people out at ridiculous time of the day. I think that would be great, I think would be really good. I mean, I use it for absolutely everything, online shopping, the whole lot. (Valery)

Patients also considered 'A local website' would be helpful to reduce the risks when searching for certain information on websites from around the world and improve the quality and reliability of information. Patients felt that having an interactive space could potentially attract younger and older patients, as people could talk to peers in a safe space and combat experiences of loneliness:

It would be good for younger people because it's interactive, it'd be good for my age I'm in my twenties, thirties maybe to learn more about yourself and then maybe for the older people who are lonely their partners have passed you know they're in their sixties, seventies, eighties. They can use that just as general chat maybe, have an instant messenger where you can connect to somebody else, say; 'I'm feeling a bit down, I could maybe go on there and it will just connect me to.' Some random person somewhere who's maybe feeling the same and just somebody to chat with, then you might make a new friend, somebody who's feeling lonely in another place might get some communication for the day. Younger people get their interactive, gets their brains working and there's a log there to remember how you're feeling. (Candy)

The interactivity was viewed as being an important mechanism to engage the patient in what they were doing and potentially improve what they remembered:

Like a scale and it's 1 to 10 and they ask you daily to rate yourself. It can give you a record as well of how you're feeling on those days. They could do something like that and they should have things like; say one's the worst, if you're at a one they should then give you more information and links to other sites that might be helpful and when you're at a ten they should have things like 'Why are you so happy today?' You could write down why you're happy and then when you look back you can go back and be like, 'Oh I was really happy because I went for a walk to the beach today, so maybe I should go for a walk to the beach today because I'm at a number 4 instead of a ten.' But because it was all done interactively you could sit back and remember what you did on the computer but you're not going to remember if you're sitting down having a dull conversation. (Candy)

Through technology what I would like from the NHS from a mental health point of view, I would like the NHS to have a website like Facebook. Where you can speak to nurses, counsellors, face-to-face, not face-to-face, message them, tell them how you're feeling. If you're sitting with a knife or razor blade to your throat ready to go; I think you actually need somebody to talk, somebody that is there and that has professional knowledge, the skills to talk you out of how you're feeling. A community room for mental health, community chat room, that's what's missing. A group where you can actually hold a group session online for whatever

kind of illness, depression, whatever kind of mental health problem there is. (William)

The 'Genuineness of professionals' and being able to ascertain whether a professional was being genuine was important for patients. Using mICTs was a more effective way to do this compared to telephones; observing sincerity in professionals and knowing they were someone's priority could potentially make patients feel better:

> *It would be good to have somebody to be able to, that would be good having a face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they want to be there. So I think video would be brilliant for mental health.* (Candy)

Having the opportunity to video-chat or conference-call their professionals was desirable. It also offered the opportunity to have a visual conversation without requiring the person to leave their home as this was often an issue for people:

> *My CMHN is a really busy person and she has to change appointments quite a lot with me. One day it was ten o'clock, then it was eleven o'clock and it ended up being two o'clock and she came at ten to three. If she had that option and I had that option to be able to Facetime her that would be the next best thing than face-to-face. And that would maybe save her an awful lot of time as well trying to rush out to me. If I'm having a bad day, trying to get a hold of her sometimes it's quite difficult, I just sit and I try her once and that's it, I give up. Whereas if you had Skype, or iPads, Facetime would be alright, say two minute Facetime, 'Tricia I'm running late what time would be better for you?' That would be more personal for me and it means that I know she's working for me. Not just her NHS is keeping her behind because of this course and this course and she's got to do this or another patient has kept her.* (Tricia)

Patients would like their professionals, when discussing mICTs with them, to be taken seriously and speak to them as an equal, rather than talking down to them because they think they knew more about technology:

> *To be taken seriously first of all because health professionals; they'll give you what you need, like 'There's your Citalopram now go away and don't kill yourself.' You would want them to sit down with you and speak to you as an equal, not talk down to you because they know better because they know more about the Internet because that's how I feel the doctors are as well with the pills. So they would need to explain it. I know the NHS has their own website but they should really have one designed for mental health. Maybe have the websites on there and have them explained because just now it's not easy finding them. If you go and Google mental health help you can get Australian websites, American, you need one kind of local.* (Candy)

Patients would welcome their professionals to support them with IT literacy, if they were knowledgeable and confident in the material they were discussing. Patients considered there to be potential in using mICTs individually, and together with their professionals, as part of the recovery process. Therefore, patients were creative in devising ways in which technology could improve their care, if it was harnessed fully, and used in conjunction with the mICTs that they already owned and used. The importance placed upon communication by patients suggested a requirement to tailor communication methods to the person and to offer a menu of communication options to facilitate the interconnectivity between patient and professional.

Patients disliked how the use of telephones appeared to be the main communication method of Services due to their reluctance to use mICTs in this manner. Patients desired improving the choice and control over how they communicated, such as having a texting service for those who disliked face-to-face meetings, or talking on the telephone. Patients considered that having the option to text message or email Services would help to reduce their anxiety regarding having to answer incoming calls. Text messaging and emails were seen to potentially reduce the stress of synchronous communication, giving patients time to construct and format digital messages, which was viewed as a cathartic process by some users:

> *Texting, yeah, definitely. If you're a while between appointments and you just want to be able to say, 'Can you suggest how I deal with this?' that would help. I think it would definitely be useful to know that you can just text. I suppose in a way because you can text it; so you can write it down and it makes sense. Because you have to think about what is actually bothering you if you're writing it down, which might in itself help you find the answer yourself because you've put words to it. When you're not able to use the phone to actually speak to someone because of anxiety over who you're going to get or are you going to be put on hold or in a queue or whatever, to know that you've texted and that it'll get picked up and replied to and dealt with would be a big, big help.* (Susan)

Texting can help people express in words how they're feeling and at a pace that is comfortable to them. Texting also allows them to keep a record of what has been said so they can return to remind themselves of the information later if they had forgotten. Writing a text message could help patients work out solutions and 'Aid problem-solving' of their issues, which might result in them not needing to send the text to the professional. Patients valued the option to receive timely responses from Services after contacting them; even if the reply text only confirmed that Services had received the message. Doing

so was considered potentially beneficial for the reduction of anxiety and stress in some patients, particularly those who ruminated on these thoughts.

Patients saw the benefits of having digital copies of their work, such as their care plans and risk assessments. This availability of information could help them to keep on track and remember the work they had been doing, mitigating memory loss and reduced concentration, which were common issues faced by participants. This would in turn provide patients with the opportunity to have ready access to the information they needed and improve interactivity in the therapeutic relationship. This was linked to having 'A local website', which was either cloud-based through a website, or saved on mICTs. This would create for them a place where the material that they were working on with their professionals, appointment summaries, appointment dates, copies of care-plans, and risk assessments could be viewed, amended and stored:

> *You can look back, that would be something that stops you questioning yourself, 'Is that such and such, did I do that, did I say that to them?'; when you're sitting there in those moments driving yourself demented over something that really isn't that important but the fact you can't remember it is the important thing. The fact that it is bothering you is the important thing whereas you could just go 'Tick, username password, I did, well that's that done then,' and on you get with your day. You can go back and say, 'Well I remember doing something like this,' go back and look at it. I did such and such it seemed to work I'll try it again. I am useless with appointments it could be used as a storage medium. Taking minutes of your meetings, your chats, you can look back on what was said. You can go back and look at what you've said, what you've agreed to, what you've organised, your future appointments, your past appointments, your current level, any paperwork that you've been given. I am a nightmare for losing paperwork so you could have a digital PDF copy of any of the forms and the little helpful bits that you get every now and again that have got things to do and distraction techniques.* (Greig)

Being able to have access to a 'Digital record', which could store the interactions that a patient had had with their professional in terms of what was said and planned and in relation to the work they were doing together, was advantageous. Having a digital copy of helpful words from a professional could help patients feel reassured and able to manage between appointments:

> *If it was documented I could always have like a piece of my CMHN with me, it sounds really silly but the thing she says if it is written down I could take that away and when I'm feeling down I could read it instead of having to go phone somebody. I could maybe just read it and be like, 'Exactly, she said this, it's only two weeks, I'll be fine'. But just now we don't have anything like that just now.* (Candy)

A digital record where people's daily thoughts, feelings, emotions and behaviours could be written down, stored and accessed by patients to read, reflect on, or use to self-manage was a desirable functionality:

> *Like minutes of appointments, it would have been helpful so the next time we did meet up I'd remember what we'd already spoke about. It would have been useful getting an email after every appointment with what was said; things like targets and goals that we were going to work on, stuff like that. I'm very forgetful so if I'd spoken about something I'll end up forgetting. Something like that where you can log-in and you can open up a lot more if you feel like you need to, and you can keep records of previous appointments or previous chats that you've had, you can even chat online. Keep record of it all and you can compare, if they're [CMHN] writing stuff down while they're at your appointments you don't know what they're writing down, you don't know how it's building up and how much you're improving. Whereas, if it's online and you can see it as well as your practitioner you can keep an eye and you can think well I'm really improving, I wasn't like that like six weeks ago.* (Kate)

Online resources with functionality and usability were viewed as the way forward for supporting peoples' mental health issues providing ready access to education and information. A twenty-four hour, seven-days-a-week, service was seen as invaluable, as patients stated that they could not choose to become unwell when Services were open. Patients' social support networks were reduced at night because their friends were sleeping, therefore, having an ability to see a professional face-to-face, at night, using video chat was considered helpful:

> *It would be good to have somebody face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they want to be there. So I think like a video chat would be brilliant for mental health.* (Candy)

The landline's function had appeared to transition from primarily being used for telephone access, to one of Internet/broadband access. This highlighted a relationship between mICTs and the patients who were experiencing 'Health inequalities'. Two-thirds of the patients participating in the study were from lower socio-economic groups, however, they still owned one or more mICT. Patients described having had the ability to buy a basic tablet for thirty pounds, which allowed mICTs to become affordable to the majority of people. Instead of pay-monthly contracts or top-ups on mICTs, patients bought cheap tariffs with unlimited texting. However, these tariffs would not contain many call minutes and that was one of the reasons patients favoured a texting service. Some patients preferred to use mICTs to target special rates and deals for their Internet

and telephone use instead of paying fixed landlines charges. Having a digital service with 'Backward functionality' which offered inclusivity for people with older mICTs was viewed as being necessary so that people did not need to buy the most recent models, which effectively priced people out of the market. Patients used their mobile phones to access online material, instead of via landlines, due to reduced rates and deals, such as free texts and data bundles:

> *I couldn't do without mobile technology because I'd need it for my banking online, because everything is online nowadays; like banking online and registering with different places. Every day I'm on my banking online making sure I'm not overdrawn or making sure that a certain direct debit has come out so I need that for banking online. A big chunk of it's for Facebook, quite a bit, there's only a small chunk that's for my banking online but there's quite a big chunk for Facebook. It's very expensive, I've got a phone contract that fifty-four pound a month but that's for a massive chunk of Internet so I've got twenty Gigabyte of Internet because I use so much Internet that I need quite a dear contract. I use that as my lifeline for folk getting in touch with me because I don't have a landline. Because I can't afford to have a contract and a landline, I could only afford to have a phone contract.* (Gail)

When designing systems, software or guidelines, patients wanted interactivity between the person and technology to keep them engaged and to trigger helpful memories. It was hoped that mICTs could promote a more personalised service where people received timely responses. Therefore, patients would essentially receive more choice in terms of how they could connect and communicate with Services and their professionals. Patients were in contact with professionals at different frequencies and intensities depending on their health, and even when unwell, they spent more time apart from their professionals than together:

> *You're given medication, you're given therapy, but when you go home what's there for you? And I don't like being medicated, I get really sleepy and I like to stay awake, I like to enjoy my day. I might be depressed but it doesn't mean I don't like the simple things such as sitting outside and enjoying that it's a nice day.* (Candy)

Patients saw potential in their mICTs for providing opportunities to fill the 'empty' space between appointments, and, as such, their use as extra-therapeutic resources:

> *I've phoned the Samaritans and they're great because they calm you down and talk to you but they don't really give you any help, other than stop you killing yourself until you can get help. I don't know whether technology, mobile technology could be developed to help in that respect, that it almost gives you*

something to turn to if you're really struggling at three o'clock in the morning or something. (Brian)

It was also suggested by patients that their professionals could have the option to view the website, including patients' comments, to monitor their wellbeing and behaviour between appointments. Patients thought this could potentially aid therapeutic work due to their professionals having a window into their patient's life between appointments. Therefore, their professionals could assess aspects of their patient's presentation to talk about when next seeing the person. Patients spoke about future Services and how they would like to interact with professionals using mICTs, and, as part of this, they appeared to be aware of the potential concerns that professionals might have if this came to fruition. For example, mICTs could make them both more contactable and accessible and the transfer of information easier. The patients empathised with professionals; foreseeing their concerns about being constantly contactable and being overwhelmed by information and requests:

> *Well appointments by email definitely. Being able to contact by email. I appreciate that has its dangers, you don't want to be flooded with emails from a client or questions about every little thing from a client but sometimes there are questions.* (Cal)

This suggested a good level of insight and personal responsibility when using mICTs; their empathy might suggest such misuse whilst this concern for professionals may be overestimated. The interviews with patients highlighted the fact that they saw their professionals as busy people and that any use of mICTs between them and Services would need to be used responsibly and not taken advantage of.

Patients had become 'Digital pioneers; left alone to use mICTs, they had found ways to help with their mood disorders and forged ahead, leaving their professionals behind. 'Expert mICT patients', early adopters, or those who had a keen interest in mICTs had developed 'Work-arounds for issues' they faced regarding interacting and communicating digitally with Services. In some instances, they felt more knowledgeable and specialised regarding mICTs than the professionals who supported them. Patients advised professionals on what websites or apps to use. They had assumed mICTs were too specialised for health and social care professionals to use. Therefore, technologically savvy patients found ways for their mICTs to work for them despite the design and delivery of Services. All patients felt that that there was a need for change by Services; to harness mICTs in their work with them. Their mICTs became a companion, taken with

patients to most places, used for support when necessary, and in a manner that was suitable to them. For example, mICTs offered distraction through gaming, helped patients keep in touch with family, and supported the maintenance of social capital, essentially, an un-tapped reservoir of self-management potential. Patients had been using mICTs for years, especially the newer forms, such as smartphones and tablet-PCs. They had learned to use them themselves, and had navigated and negotiated the benefits and challenges alone, without the support of their professionals. Patients appeared to be insightful, they understood the potential of mICTs, and appeared to appreciate the misgivings that professionals held about using mICTs with them.

Future digital workplace

Professionals held creative ideas on how to improve services through a future digital workplace and, thereby, potentially improve patient care. They were aware of 'The digital disconnect' between them and their patients; identified as the absence of hardware being used and incorporated into clinical practice as a therapeutic and communication tool. Although limited in terms of the functionality and usability offered by their current Service-provided mICTs, professionals still tried to make the best use of their potential. For example, text messages were used to convey information regarding time-keeping or for appointment management, and some patients could send text messages to their professionals. Therefore, there did appear to be an interchange of information taking place to a limited extent:

> *I don't tend to give my mobile phone number out, I usually just stick to the office number. Having said that, there's flexibility everywhere so there are occasions I do. But one has to be very careful because you'd be bombarded with phone calls particularly when you're with other patients; there's those patients that just wouldn't have boundaries. So I tend in the main to just stick to office telephone. But I obviously will use my mobile to phone them at times but I won't give it out willy-nilly. I'd be very careful if I gave it out. I think, and I don't know if it's in writing or not, but I think there's kind of an unspoken rule in the department that you don't give your mobile phone number out. Say I went out to a patient and I felt they were perhaps experiencing suicidal ideation but weren't able to talk to me about it but I felt it was there. I would maybe give them my number at that point and say, 'look here's my number phone me'. What other times? Patients who might be struggling with their memory a lot, I'll give them my number and say, 'There's my number,' and I'll put it on their wall or something, you know, 'If you find you can't remember or if you forget something phone me.' If I think it's really important, for example, they've maybe got an appointment made short-term with their psychiatrist that I've arranged I'll say, 'Look if you forget the appointment there's my number, phone me.' Anything to make sure they keep the appointment or their depot injection or something like so things like that I will give it to them. I wouldn't give it to them just to have a chat. (Josie)*

Mental health and social care professionals varied in regards to which contact details they disclosed to patients and how often. Of concern to professionals was the prospect of becoming too accessible to patients. Some professionals provided mobile and email details almost immediately, whereas others never disclosed contact details. Historically, there has been a barrier or gatekeeper between patients and professionals, whether this was a receptionist or an administrator. With the onset of mICTs, the accessibility of professional by patients had the potential to become easier. However, motivation from professionals was required for this to occur and there appeared some level of apprehension related to this. From the professional perspective, there was the fear of being overwhelmed or bombarded by emails, texts and telephone calls from patients. To facilitate a means to protect oneself there was a 'Digital distancing' between professionals and their patients, which required constant management. This created a metaphorical barrier against the thought of burnout and compassion fatigue due to being constantly connected and contactable:

> *I think you could get a lot of instantaneous off-loading and that's another reason that I personally don't use texts and emails because I think there is that tendency to just say everything. That spur of the moment stuff, it's instantaneous isn't it; they've maybe been out on a Friday night having a few drinks and think, 'Oh I'll just get rid of all this and send it to my CPN.' I've got one or two clients that I would encourage email or text but it's only in an emergency and it's only to pass messages about appointments.* (Jennifer)

> *I spoke to the person and said, 'This is not this type of service this is only to be used at certain points,' and I think some people just don't understand. Especially people with mental health problems; you've sometimes got to explain it to them because they don't see it the way we would see it. You wouldn't text somebody ten times in a row, you'd get accused of being a stalker. They're not thinking like that, they're just thinking, 'Oh, I'm needing this right now and I'm going to tell someone.' But sometimes you have to explain that's not the way to do it and for me that time it, so it's sometimes just about talking to someone and explaining.* (Audrey)

When at work, the pressure of time was a significant issue for mental health and social care professionals and they saw potential in using mICTs for 'Managing time more efficiently and productively'. Their ICT infrastructure and the type of mICTs provided by their organisations made finishing work on time a pressurised demand, due to the need to balance the mobile nature of working in the community with their lack of resources. Incorporating newer mICTs, such as smartphones, tablets and laptops, into the working role was viewed as a potential way of supporting professionals to manage their time at work, but possibly more importantly, as a means of improving the care they gave to

patients. Professionals saw the potential that mICTs had for releasing time to care for patients through their instant access to information on the Internet. This could reduce travel time and increase efficiency and productivity by inputting digital patient records wherever they were, instead of using fixed-location PCs.

MICTs, therefore, had the potential to 'Buy time' for staff and well as patients. The increased functionality and usability of mICTs could make professionals' work easier. Instead of information being accessed from PC workstations spread across health centres and hospitals throughout urban and rural localities, mICTs could facilitate immediacy in accessibility and usability of information. The location-independence of mICTs 'Facilitated quick answers to queries wherever you were', providing an opportunity for instant decision-making, time-saving, and, ultimately, to create more time for face-to-face contact with patients. Some professionals were aware that mICTs could 'Provide communication choice' for their patients. Not all patients liked telephoning and, therefore, mICTs created communication choices; providing email, text messaging, instant messaging and video-chat options. On the whole, professionals considered the increased choice of communication options beneficial as they would increase the likelihood of people contacting Services if they required support or were in crisis. MICTs were considered to be desirable tools to have and a means to relieve time and work pressures due to their convenience, usability and functionality:

> *I guess it's more instant, it helps to make instant decisions. If we've got the information that we're looking for to say, 'Yeah, there is scope to increase your medication,' we can problem-solve in session around whether that is something that the client and myself thinks is an option. Obviously that's ultimately the psychiatrists or GP's job but we can have that problem-solving discussion in session rather than either as a phone call at a later date or to discuss it at the next visit which be two weeks away.* (Carrie)

Professionals appeared to be quite clear regarding ways mICTs could enter the professional–patient relationship:

> *Some of it's around data gathering, getting the patient to keep a mood diary or a symptom tracker. Get them to come in or even send you in advance their download for the month. How they've rated their mood, looking at response to medication, changes, these sorts of things so you could do more preparatory work before you even see them. Side-effect tracking would be very useful, general physical health parameters. We know that our patients have very poor physical health compared to their peers so there's a lot of work trying to do improvements to their physical health. Sending people out rating scales as digital forms and getting them to self-rate, self-report or send to their nearest and dearest objective*

symptom rating scales. Collating that data and again showing the data in a nice visual way. You could use it to do guided work with them, computerised CBT packages that they could either do themselves or that you could go through with them and guide them through. You could send them links to downloads of PDFs. Keeping in touch generally, for appointments, book appointments over text or you could send out SMSs to remind them that they've got appointments so that you increase your return rates. (Charlie)

Charlie's insights mirrored that of patients in regards to how mICTs could be used for communication between Services and patients, such as by being brought into the therapeutic relationship and used as an aid when in appointments. Professionals had identified the potential that mICTs held in terms of supporting people to self-manage symptoms of mood disorders, such as reduced short-term memory and concentration. For example, if patients found it difficult to remember what was said during an appointment, health and social care professionals considered it advantageous for patients to have digital copies that could be worked on at home, thereby potentially expediting therapeutic activities. An example of the potential use of digital copies being sent to patients was suggested by professionals; summaries of appointments could complement homework material and would be a potential mechanism to support the retention of information by patients because it could be accessed at convenient times and between appointments:

If we're thinking about clients with depression their memory and their concentration's very poor. You can talk about lots of great stuff, wonderful stuff, provide lots of rich information during a session but they're not going to remember most of that. Whereas, if you're sending them off with how to use their technology that they've got; they can access that at a later date and absorb that later or refresh their memory at a later date. (Carrie)

The use of mICTs as an aide-memoir and digital storage facility was considered advantageous for helping patients recover faster as the information they required was always at hand and easily referred to:

We're told time and time again that they don't remember the majority of the sessions that we have. I can't help thinking that to reinforce the sessions that you're having, you can kind of move on, their recovery might be quicker as a result. Because you're not having to re-visit what you were discussing two weeks ago. You would never get anywhere, so I actually think it would certainly speed up patient's recovery time. (Carrie)

In the 'Future digital workplace' professionals saw the potential for mICTs to facilitate person-centred care. Tablet-PCs could be used by both patient and professionals to work together on care planning and risk assessment plans. Patients could keep their own copies

on their tablet-PCs/smartphones, which would become readily accessible when required between appointments:

> *A tablet would be even better because we could access, instantly access people's; recovery plans, risk management plans or risk assessments there and then. If we're in people's homes, or even in clinics where we are a large percentage of the time there is no computer available, so it would be helpful to have that instant access to that at every session.* (Carrie)

MICTs held potential to expedite communication and treatment planning, which nurses described as holding potential for helping to avert crises in patients' lives. Being able to digitally view material and information could support patients to make collaborative decisions with their professionals, thereby improving patient care:

> *I think to have some sort of tablet or even a smartphone of some description that you could access emails and Internet I think would be quite helpful. Because you could show things to patients straight away. I think you communicate better as well, it gives you more ways of communicating with patients. I don't know much about apps and things like that but I would think these would be useful as well, in the future; if they're able to get in touch with you to tell you that they're struggling in some way, then obviously that's a benefit and it's something easier for them to do.* (Bethany)

Professionals believed that incorporating newer forms of mICTs into treatment, and in so doing, the therapeutic dialogue, held the potential to enhance the therapeutic relationship. However, they were also aware that the organisations, systems, software and hardware that they used did not provide them with the mobility, usability and functionality to perform at their optimum level and provide the best possible care and treatment for their patients. They reported that a 'Future digital workplace' was required. Professionals identified a requirement for clinicians and Services to reduce the disconnection with the patients for whom they provided services by transitioning to a mobile digital workplace:

> *It's other ways that people communicate, text obviously through phones that's one progression. I think that the community mental health team and services in general; the next step forward would be being able to get in touch with smartphones, emails, with things like that.* (Bethany)

The 'Digital disconnect' was explained through the concept of a 'Paradigm clash'. Helping services, such as health and social care, appeared to be caught in a twentieth century paradigm; old buildings, old technology, old systems, old ways of working and old cultures; whereas social media, mICTs and the Internet were a new 21st Century paradigm. The NHS, a historically hierarchical organisation, had been placed upon an

egalitarian and level playing field through patients' use of social media and mICTs. The NHS had sensed a threat, had become fearful of losing power, and reacted by pulling tighter its control over its workforce's use of mICTs and social media:

> *In the NHS you're driven by policies and processes. Social media flies in the face of that, it's almost at the other end of the continuum and I think that's very scary for organisations. I think the culture within the mental health service and the organisation just aren't there yet in terms of having that conversation with patients as to how we could use technology to support them. Certainly, as professionals, we would be very much discouraged from using social media.* (Jessica)

'Being digitally disconnected' left 'Unharnessed potential' in terms of utilising mICTs to enable services to support self-care, self-management and deliver self-management support to patients with mood disorders. Health and social care professionals stated being very aware that, for their vision of a 'Future digital workplace' to be successful, it would be necessary for services and the cultures within them to fully embrace the incorporation of mobile technology into community working. In doing so, the professionals foresaw mICTs having a positive impact on the therapeutic relationship, in providing support for self-management, and that they would help manage their time better. In addition they had the potential to 'Buy their patients time' through expediting and making treatment more efficient.

The basic social processes identified within the data point to patients' needs being unmet, whether wholly or partially, as a result of their mood disorders. For example, their social, emotional, psychological, biological and communication needs were being affected, and it appeared that they used mICTs to try and meet their unmet needs with varying levels of success. MICTs had become central to patients; both in terms of positioning them centrally within their on-and-offline lives through the interconnectivity with others, information and communication, and in terms of the strong attachments that they formed with the objects. Their centrality of importance was measured by their use as 'A third hand', which provided patients with the functionality and usability necessary to fulfil various social, physical and psychological needs. Their centrality of person was identified through 'The digital window'; the mechanism for controlling the flow of information to and from the patient, connecting them to information, others and communication. 'Centrality; through praxis of interconnectivity' placed the patient in the centre of their experiences, and was interconnected both inwardly and outwardly to their world in using mICTs fulfilling their unmet needs. Patients who participated in the

research project were at different stages in their recovery from mood disorders, and these themes and usage patterns were represented in their stories of recovery and data. Examining how patients with mood disorders, and their health and social care professionals, made use of their mICTs provided understanding into their uses, challenges and benefits, spanning the intrapersonal, interpersonal, and wider society. The typology of findings and analytical framework highlighted the connections and inter-relationships between analytical themes and sub-categories, the intrinsic and extrinsic nature of use, and the embedded characteristics of the technology.

Chapter summary

This chapter presented the participants' characteristics, their demographic data, the procedural aspects of data collection, and the in-depth study's findings. The patients who were interviewed met the maximum variance sampling strategy quotas, and the professionals who were interviewed provided a varied selection of disciplines within the multidisciplinary team and a range of managerial levels of specialist and secondary mental health organisations. This facilitated the extraction of rich data from the interviews, which, when analysed, formed the results discussed above. Patients held their mICTs central to their lives; both in terms of their attachment to the technology, and their ability to centre them in their sphere of informational and societal needs. This ability to remain central to their information and communication needs was provided by the connectivity offered through mICTs. Their convenience, usability and functionality were measured by the strength of attachment that the participants felt towards the objects. Patients were using their mICTs to fulfil needs, which, in the recent past, had to be met by offline tasks and activities. Through their use of mICTs, patients were essentially outsourcing and managing their needs, whilst, along with their health and social care professionals, finding approaches to work around being digitally disconnected. The theory provides an explanatory framework for how participants are affected by their use of mICTs, how they form part of patients' efforts to look after themselves, and how professionals endeavour to deliver care for people with mood disorders using mICTs.

Chapter 5: Discussion, implications and conclusions

Introduction

With the increasing use of digital technology, the Internet, and social media, managing these new aspects of living has become the reality for most people. Understanding how mICTs were embedded into patients' lives and used by their health and social care professionals, therefore, was a key component of the research study. This chapter starts by discussing the contributions that the study's meta-synthesis, the wider literature, and the in-depth primary study had in further defining the dimensions of the concept of 'Centrality'. Synthesising this broad range of information and ideas helped to further the understanding of how people managed these new aspects in their lives, through the theoretical concepts of 'Centrality of; 'attachment', 'location and self', 'control', 'autonomy and the disconnected', 'needs', 'relationship', and 're-connection'. This is followed by a summary of the study's findings, before presenting an evaluation of the credibility of the theory. The study's strengths and limitations are discussed, followed by suggested implications for clinical practice and future research. A conclusion brings the thesis to an end.

Centrality of attachment

It has been found that online health information-seeking behaviour can influence offline health-related behaviours where online trust, privacy, reliability and confidentially issues matter (Moreland et al., 2015). However, usage is not the same for everyone as older adults have been found to be less likely to own mICTs, use the Internet, email and be willing and able to use digital services to access and perform health related activities (Gordon and Hornbrook, 2016). Although, smartphone ownership and usage has been found to have risen over all age groups since 2012 (Ofcom, 2018). Self-report data indicated that people from low socioeconomic positions (SEP) use the Internet less than high SEP individuals for health information and services (McCloud et al., 2016). However, despite being from lower SEPs, people still used mICTs to a great extent to access the Internet and for their mobile app capabilities (Ramirez et al., 2016). People from lower socio-economic groups have been found to use online shopping, social networking and Internet telephone more than those on higher incomes (Kongaut and Bohlin, 2016). Suggested reasons for this usage patterns could be that people are using

these applications to reduce the user costs compared with offline services (Kongaut and Bohlin, 2016), essentially outsourcing their needs through their mICT use. In terms of using mICTs for therapeutic interventions, research has indicated that positive therapeutic alliances can develop in the Internet environment in the absence of therapist support (Clarke et al., 2016). Encouraging women to use online forums challenged their internal and external sense of stigma and helped them disclose information to health care providers strengthening professional treatment uptake and adherence (Moore et al., 2016).

Why do people with mood disorders use mICTs?

MICTs enabled a sense of control within patients' lives, providing them with the opportunity to access information to help themselves, increase their understanding of when to seek help, and increase their awareness of what help was available. Feeling in control brought leverage to inequalities; patients acquired knowledge through mICT use and gained a sense of power, demonstrated through the evidence gained from their discussions regarding the importance of being able to search the Internet for answers to health related questions, re-engage with their community, self-manage through self-identified strategies, and access Services in ways that were helpful to them. Patients from low socio-economic groups enhanced their diversity of self-care practices through increased familiarity with the Internet and the necessary skills for using it Internet. This diversity has been observed to increase social capital and promote self-management practices, in that when it is used for entertainment, the Internet does not necessarily detract users from health-related usage (McCloud et al., 2016). Other control behaviours facilitated by mICT were: being able to see who was calling and to decide whether to answer the phone or not; being able to decide whether to reply or send a text message (control and a cathartic process); and whether to accept or delete relationships online. The smartphone had become an artefact of safety; a defensive shield, an appurtenance of need, which was a gate-keeper between one's inner world and society. MICTs had become an integral part of patients' daily activities; helping them manage their lives by connecting their on-and-offline worlds, and supporting them to find fulfilment through the information they engaged with. The importance that patients projected upon their MICTs made them essential objects in their lives. MICTs were desirable commodities; whilst patients shared other aspects of their lives with friends and family, their mICTs remained their own 'treasured' possessions, forming their 'Centrality of attachment'.

ICT research has gained popularity over recent years, demonstrated by increasing access to online self-help resources (Van't Hof, Cuijpers and Stein, 2009), effective delivery of psychological interventions (Andersson and Cuijpers, 2009), and ICTs' ability to reach rural areas within diverse populations and settings (Richards and Richardson, 2012). Increasingly, ICTs are being considered a key component for providing patients with greater access to health information and the benefits of engaging in self-help behaviours (Barnes et al., 2011; Horgan, McCarthy and Sweeney, 2013; Lillevoll et al., 2013; Pohjanoksa-Mäntylä et al., 2009; Purves and Dutton, 2013). Patient enablement in off-line clinical settings has relied upon patients' perceptions of how their professionals display empathy towards them (Mercer et al., 2012). In contrast, therapeutic alliances can develop in Internet-delivered self-guided interventions where there is no therapist support, which suggests that the quality of alliances in this format is not as important compared to the traditional therapies that are delivered face-to-face (Clarke et al., 2016). The in-depth study further explored this change in relationship features and conceptualised the common processes that characterised relationships in the online environment. Of particular importance was the egalitarian nature of the online communication medium and the 'Choice and control' it provided to patients. At a relational level there appeared to have been movement in the power dynamic between patient and professional; patients were outsourcing their needs through their mICTs, meeting their needs when and how they wanted, with less reliance upon traditional systems of support. Confirming previous research by Lillevoll et al. (2013) and Watkins et al. (2011), this study identified that patients with mood disorders both sought and received support through their use of mICTs, often facilitating their first steps towards managing their recovery after periods of deliberation. The study's meta-synthesis identified a number of factors that influenced why people with mood disorders chose to use ICTs, such as their affordability, accessibility and versatility (Fulford et al., 2016). Whilst the CGT approach conceptualised similar factors that influenced why patients with mood disorders chose to use mICTs, it also theorised new ones, such as power (facilitate choice and control), safety (sense of attachment), and fulfilment (informational needs met).

Centrality of location and self

What are mICTs being used for by people with mood disorders?

The pace of technology change and development has enabled hardware to become smaller, lighter and more portable. Since the time when email, games and the Internet

were mainly accessed through PCs, there has been a transition to smaller more mobile devices such as smartphones and tablets without loss of functionality and, therefore, they have been likened to a 'computer in your pocket'. The portability of mICTs facilitated patients to be location-independent; they were not required to sit in a certain place such as when accessing a PC; instead, their mobile technology travelled with them. In this respect, mICTs provided the patient with a certain mastery over their environment, opening up spaces for their benefit. Patients were able to carry with them, in the mICTs, their social networks, access to social capital, and an ability to outsource their needs and manage their recovery, wherever, and whenever they wanted. Patients whose continua of attachment held stronger ties used their mICTs on a regular basis.

The study clearly indicated that interactivity was an important issue for patients when using their mICTs. Having a passive relationship with hardware or software, one where there was no access to a person 'behind the screen', was regarded as being unhelpful by patients, with suggestion that dropout and redundancy would increase. MICTs that were stimulating to use interacted well with patients' senses and their cognitive abilities, and enhanced engagement, which appeared to be vital in the context of online depression therapy. The study identified that, with engagement, an enhanced sense of personal agency arose from interacting with mICTs, and the completion of online activities offered a sense of empowerment. Patients in the study wanted an evidence base for the technology they used and accessed; 'reputable' sources of advice, information and interventions, such as NHS-branded software and hardware. As patients had to navigate and negotiate using mICTs alone for self-management purposes, there was a general suspicion of health information available on the Internet. Whether in the form of websites, support forums, blogs or social media, patients sought information from trusted sources. The digital disconnect separated patient from professional in terms of communication, but also, from the availability of self-management support delivered over digital formats. This, unfortunately, left a considerable amount of un-harnessed potential; as online programmes have been seen to support people in varying ways.

The functionality of ICTs is an important factor for people's continued adoption and use of technology (Proudfoot et al., 2010). The study highlighted similar findings; patients used mICTs to meet their needs, therefore, their continued use was dependent upon the technology being able to fulfil these requirements. This also aligned with research undertaken by Cho (2016) relating to the micro-mechanisms of using health apps on

smartphones, where emotional and perceptual factors, such as perceived usefulness, confirmation, satisfaction, and perceived ease of use, were associated with their continued use. Furthermore, the study identified similar usage requirements that had been suggested in previous research, were all important features for the end-user, for example: having functions to compare information from day-to-day to week-to-week and track information; the ability to format content and use online diaries, forums, bookmarks, blogs and messages; the ability to control privacy settings, invitation functions and e-reminders; and options to reply directly to clinicians (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011; Stjernswärd, Östman and Löwgren, 2012; Takahashi et al., 2009; Todd, Jones and Lobban, 2013; Watkins et al., 2011).

ICTs with increased usability are desirable (Fogel and Nehmad, 2009; Proudfoot et al., 2010), for example, having a user-interface that is personally controlled, with an array of images, colours, information and music options, can help to engage the user (Purves and Dutton, 2013). In addition, being able to use ICTs in different locations (such as work, home or on public transport) are important factors when assessing usability by the user (Proudfoot et al., 2010; Stjernswaerd and Oestman, 2011). The study highlighted similar findings and also the importance to patients of having the option of location-independence through using their mICTs. Their mICTs provided patients with a mechanism to enable feelings of being in control; their environment could be made to work for them, to be used for distraction, respite, and comfort, and, for some, avoidance.

When designing ICTs and online interventions, placing importance upon managing the symptoms of mood disorders using evidence-based interventions was important (Bae et al., 2009; Todd, Jones and Lobban, 2013). For example, ICTs can facilitate people to solve problems through structured approaches using manageable steps (Purves and Dutton, 2013; Richards and Timulak, 2012). Focusing on achieving manageable goals using ICTs can enable a sense of completion (Donkin and Glozier, 2012; Todd, Jones and Lobban, 2013) to cognitively restructure, facilitating people to rethink stressful situations that challenged their negative thought patterns. Online programmes can also facilitate behavioural changes by breaking negative cycles of inactivity, self-incrimination and withdrawal, leading to secondary benefits by forming closer ties with those around them (Bradley, Robinson and Brannen, 2012; Lillevoll et al., 2013). Peer support accessed through ICTs support people to feel more positive, promotes self-awareness, leading to behavioural change and the confidence to negotiate changes in treatment (Takahashi et

al., 2009). Accessing online medication information through ICTs prompts people to request additional drug information from their prescribers regarding risks and benefits of antidepressants, and, conversely, influences others to change the dose of drug or discontinue prescriptions without first seeking professional guidance (Pohjanoksa-Mäntylä et al., 2009).

People who take responsibility for their treatment have a sense of determination and curiosity and who attribute success to their own endeavours appear to benefit more from treatment delivered through ICTs (Bendelin et al., 2011; Donkin and Glozier, 2012). Therefore, people are more likely to persist with ICT interventions if they engage with curiosity, are motivated towards learning self-management techniques, and when they notice an improvement in their health (Donkin and Glozier, 2012; Wilhelmsen et al., 2013). These findings were similar to research undertaken on mental health smartphone apps, which identified a requirement for in-built interactive frameworks in order to retain user engagement (Bakker et al., 2016). Furthermore, ICTs can support people to stay in contact with the health professionals involved in their care and to establish therapeutic relationships despite being separated by distance (Fogel and Nehmad, 2009; Swinton, Robinson and Bischoff, 2009; Watkins et al., 2011).

Centrality of control, autonomy and the disconnected

What are the perceived benefits and challenges of using mICTs by people with mood disorders?

Patients found that using mICTs helped increase their sense of choice and control in their lives, which was helpful in terms of recovery. Control was important for both patients and those providing services, but for differing reasons and outcomes. Where patients used mICTs to exert choice and control in positive ways to promote autonomy, Services appeared to exert control to limit and restrict its employees. Patients, and the services that cared for them, appeared at other ends of the continuum of control. The structure of Services, as a hierarchical organisation, potentially felt threatened by the ubiquitous nature of mICTs and their egalitarian virtues. One way of controlling the perceived threat was to exert greater control and provide less autonomy for their employees when using mICTs. Whether conscious or not, this maintained the status quo and caused inertia in terms of embedding new technology within their culture. This was witnessed by and clearly apparent to patients who were aware that Services were behind them in their use of mICTs. Digital communication pathways between Services and patients are needed

before professionals can be contacted and health information can be acquired via mICTs for self-management support purposes.

In contrast to other forms of communication, patients in the study discussed the value that they attached to their mICTs for providing an opportunity for asynchronous communication due to the benefits that this type of medium offered them. MICTs' ability to provide powerful technology in a mobile format provided the patient with an interactive platform where they felt engaged with the technology and software being used. Delivering this same user experience proved difficult when using older types of technology, such as CDs or DVDs. Whereas in the past, patients would have different devices for different activities, for example, a hi-fi for music, a PC for computing and accessing the Internet, and a TV for entertainment, mICTs have provided a platform for all of these functions in one mobile device. Parts of patients' lives have increasingly become interconnected through the technology they use. For example, socialising, listening to music or surfing the Internet are no longer separate activities, they can be undertaken at the same time on one device. MICTs have become embedded in patients' lives and are included in their relationships with others.

There are clear motivations for people to use their ICTs as they have been seen to facilitate the conversion of intentions into actions (Bendelin et al., 2011; Donkin and Glozier, 2012; Fogel and Nehmad, 2009; Lillevoll et al., 2013). MICTs hold the potential to enhance patients' communication options with associated advantages, such as being able to get in contact with health professionals quickly and easily, a reduction in travel and waiting times for face-to-face appointments, and improved convenience and affordability. ICTs can provide a communication medium between professionals and patients where information about the patient's disease, treatment and therapeutic interventions could be discussed (Eland-de Kok et al., 2011). However, usage difficulties were a key factor for participants within the in-depth primary study, and were associated with patients having a reduced motivation to use mICTs. The study highlighted people's concerns surrounding confidentiality and data security, which were clearly associated with the perceived disadvantages of mICTs, such as: software errors, unreliable information, problems with privacy and unreliability, lack of regulation, social isolation, and, in some forms of technology, the loss of vocal intonation and non-verbal communication.

ICTs can support people to stay in contact with health and social care professionals involved in their care and to establish therapeutic relationships despite being separated

by distance (Fogel and Nehmad, 2009; Swinton, Robinson and Bischoff, 2009; Watkins et al., 2011). Whilst this may be the case, the study identified that patients are often disconnected digitally from their professionals. People of older age, and those with lower annual household income or lower educational attainment were associated with experiencing more difficulties when using electronic and touch-screen devices such as mICTs (Zarghom, Di Fonzo and Leung, 2013). However, the study supported findings by Ramirez et al. (2016) as, although difficulties were experienced, older patients displayed interest in using their mICTs, whether that was to use apps or access the Internet to support the self-management of their long-term conditions. The study identified that usage difficulties were compounded for patients of all ages, depending on their levels of IT literacy and digital disconnection, so patients, therefore, were required to navigate certain barriers and hazards when using mICTs in their management of long-term conditions.

Centrality of needs

In what ways are mICTs being used for self-management by people with mood disorders?

The multilevel social-ecological model developed by Glasgow et al. (2005) represents the combination of formal and informal support resources available to people in their self-management processes (Figure 7). The in-depth primary study has theorized that, while patients have used mICTs to meet their needs regarding 'Informal – Interpersonal' resources, the digital disconnect has highlighted the lack of resources available for patients to meet their 'Formal – Institutional' needs and, therefore, access to self-management support via their mICTs.
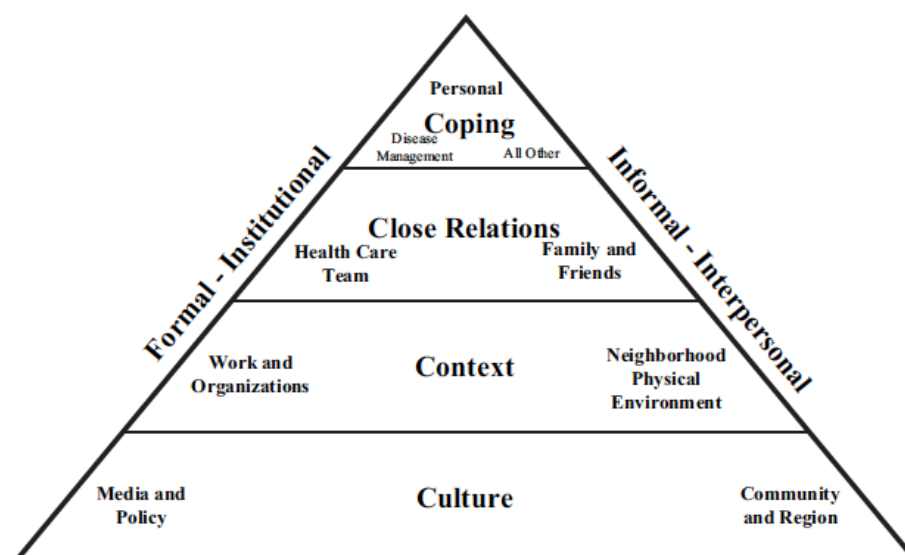
Figure 7: Pyramid model of social-ecological resources

It appears that, incrementally, mICTs have become an important part of patients' lives to the extent that there is reliance upon using this type of technology to meet patients' needs. Whilst there are websites, apps and online interventions specifically designed by health professionals for patients with mood disorders, a lack of personalisation and tailoring of apps with the input of the end user led to redundancy or non-use. This study identified that patients were favouring other, more generic resources above these; patients were finding approaches to self-manage through the extra-therapeutic activities that mICTs enabled them to engage with. Therefore, mICTs provided a mechanism for patients to outsource their needs; whether these were basic needs (online shopping, organising finances), psychological needs (attending to relationships, accomplishing stages of recovery), or self-fulfilment needs (meditation, yoga, creativity). An example of this observation, provided by a patient in the study, was the use of an app to check weather and tide times to plan walks. Walking was an important part of the patient's recovery, a behaviour supported by research evidence to help improve mood (Robertson et al., 2012). MICTs have progressed from being novel, fun 'toys'; to being integral objects in peoples' lives, where importance has been placed upon them and their ability to fulfil needs. The study has created a global, macro-level understanding, of how patients have positioned and made use of the mICTs in their lives.

This macro level understanding has the potential to facilitate the self-management support for patients with mood disorders by enabling them, through their mICTs, to prevent relapse and maintain their management of good health, forming an adjunct to

conventional treatments. The functionality of mICTs aligns well with the work of Houle et al. (2013), who identified that the goal of SMS for patients with mood disorders was to recognise the signs of deteriorating health, to have action plans to implement at signs of relapse, and to know how to access the resources available to them. The specific skills required to achieve this were identified as: adhering to plans; adopting healthy living habits; monitoring health changes; maintaining effective communication with health professionals and support networks; and avoiding trigger situations (Houle et al., 2013). MICTs can be used to acquire relevant knowledge in regards to the mental health issues faced by patients with mood disorders; which can be linked to an increasing trend in society to adopt self-service models of interaction (The Scottish Government, 2012). There are advantages for patients when using eHealth, such as; being able to get in contact with health professionals quickly and easily, a reduction in travel and waiting times for face-to-face appointments, and convenience and affordability (Angel et al., 2015). There have been promising results for using computers to deliver self-management programmes to patients with long-term conditions in health-supported settings, showing a potential for changing health behaviour and improving clinical outcomes (McDermott and While, 2013). Outcome data from randomised control trials (RCTs) and meta-analyses have identified the cost-effectiveness and clinical efficacy of mental health programs delivered via mICTs with comparable effect sizes to those found for face-to-face treatment (Barak et al., 2008; Harrison et al., 2011). Web-based interventions have also been highlighted as having positive effects on patient empowerment and self-efficacy, including people with physical health conditions such as cancer (Kuijpers, Groen and Aaronson, 2013; Samoocha et al., 2010).

The in-depth primary study identified that patients use their mICTs to create help-seeking opportunities and to access support with their mood disorders. Yet evidence points to the variable quality of information and apps available on the Internet (Barnes et al., 2009; Eland-de Kok et al., 2011; Hogan and Kerin, 2012; Moore and Ayers, 2011; Pandey et al., 2013). There appear to be numerous health-related websites with limited availability of help, containing information that can be difficult to read and incomplete (Barnes et al., 2009; Moore and Ayers, 2011). As discussed earlier, patients in the study identified the challenges of sourcing, through their mICTs, validated health-related information or interventions on the Internet, a process hindered by 'Being digitally disconnected'.

Centrality of relationship

What role, if any, do mICTs play in terms of social relationships for people with mood disorders?

The in-depth study identified that mICTs held a central role in people's management of social relationships. Patients knew that, wherever they were, they essentially had access to their friends and family, social networks and social capital. This provided them with a sense of security and a mechanism for meeting their social needs. Where people situate themselves in terms of how central mobile technology is used in their lives appeared not to be fixed, but rather, occurred on a continuum. As such, movement appeared to be at the heart of people's relationship with mICTs, from being at the centre of people's lives in terms of attachment and tether with society, to the point where the technology is at the edge of their lives, both in terms of importance and positioning. People with mood disorders used mICTs to give and receive social support. MICTs could afford patients a sense of anonymity when talking about issues on forums sites, as the asynchronous communication provided them with a sense of control in their relationships and provided a mechanism to escape and distract themselves from problematic thoughts and experiences. However, for a minority of patients within the study, recovery was focused upon using off-line connections with people to facilitate well-being instead of relying on the virtual world. MICTs were still used to arrange meetings, such as going for a coffee, however, what counted was the real one-to-one contact with others. People, at times, chose either not to use mICTs or to downgrade the functionality of the technology. This purposefully limited their access to inter-connectivity, essentially removing them from a sense of information overload when they could no longer manage the biopsychosocial requirements of using the technology.

Patients in the study continued to use their mICTs for social interaction due to similar reasons identified in research undertaken by Hsiao, Chang and Tang (2016), namely; for the close connection with others, user satisfaction, habit, and usefulness. This corresponded with previous research regarding the use of SNS and its associated indices of psychological well-being relating to a person's sense of self-worth, self-esteem, satisfaction with life, and other psychological development measures (Steinfield, Ellison and Lampe, 2008). Before the development of popular online SNSs such as Facebook, Skinner and Zack (2004) had identified that barriers to communication were being overcome; using the Internet enabled people to receive help in ways that were convenient to them. Patients used their mICTs in similar ways to those identified by Quan-Haase

and Young (2010); to access online SNSs for their sociability function, to maintain relationships with on-and-offline friends over varying distances, and attending to extended social networks and relationships. People with mood disorders used their mICTs to access social networks in a similar way to that suggested by Cohen (2004), by providing platforms to give and receive social support in the form of informational support, instrumental support, and emotional support. SNSs facilitated people to engage in self-soothing behaviour by the giving and receiving of empathic responses to and from friends, which corresponded to work undertaken by Suler (2004) regarding online disinhibition. Suler (2004) suggested that several factors that could loosen psychological barriers, allowing for inhibition to reduce when online, included: invisibility, dissociative anonymity, asynchronicity, dissociative imagination, solipsistic introjections, and minimising authority. Patients in the in-depth study described experiencing similar factors; importantly, patients appeared aware of, and acted purposefully in regards to, using their mICTs in these ways. This also aligned with more recent studies regarding the value of online health communities, in particular, the health information resources available to people from engaging in this type of behaviour (Nath et al., 2016).

Centrality of re-connection

What are the views and experiences of health professionals regarding the use of mICTs by patients with mood disorders?

Professionals and patients in the study described and were aware of a digital disconnect. Patients used more advanced mICTs than professionals; they had found their own way to use technology to help manage their mood disorders. Professionals felt hindered by the basic functionality of their mICTs and resorted to using their own personal smartphones for the betterment of their patients. The digital disconnect effected interconnectivity; the disparity in functionality between the technology used by patients and professionals caused a lack of choice and control in communication options. The digital disconnect highlighted the rift caused by the absence of mICTs and the un-harnessed potential in therapeutic work between professional and patient. Research has pointed to how lack of communication within services, and between services and patients, regarding ICT use, professionals being unaware of their responsibilities when using ICTs, and unclear service objectives, can all hinder the incorporations of ICTs into service delivery (Bond, 2014).

Recent research has indicated a lack of specific guidance for the utilisation of e-mental health relating to special populations, thereby reducing clinicians' capacities to ethically and effectively utilise e-mental health interventions (Sansom-Daly et al., 2016). Similarly, findings by Pierce et al. (2016) suggest that although practitioners are interested in using Acceptance and Commitment Therapy related apps, lack of guidance on what apps to use and how to integrate them into therapy can be a major barrier in adoption and their continued use. Recent research has indicated that such guidance and support may be well received by healthcare professionals; if presented as an opportunity to extend choice to the consumer and enhance care (Berry et al., 2017). Whilst healthcare providers may show high levels of interest in using software apps and websites for supporting people with mental health issues, very few do so, highlighting a technological gap between providers and consumers of mental health services (Schueller et al., 2016).

One explanation for the digital disconnect could be that patients and professionals conceptualised self-help in different ways. A study by Pratt, Halliday and Maxwell (2009) identified that, whilst patients may see the benefits of self-help, their professionals may not, leading them to underutilise self-help interventions, and, as a result, it was necessary that the professionals were convinced that:

> *Interventions are useful, effective and accessible as there are significant barriers in professionals using self-help; if they are not convinced, such approaches will support their therapeutic approach.* (Pratt, Halliday and Maxwell, 2009, p. 209)

Both professionals and patients identified that there was a digital disconnect between the status quo and the future design of services; there was lost potential, as mICTs were not being used to improve care and treatment in a digital workplace. This observation is in contrast with research that suggests that professionals promote clinical improvements when using mICTs with patients; in their overall productivity, processes of care, improved communication with patients, and enhanced technological efficiencies (Koivunen, Niemi and Hupli, 2015; Schooley et al., 2016). Professionals were aware that some clients had found ways to use their mICTs for self-management, with gaming appearing to be a common theme, especially in its use for distraction from rumination and negative thoughts. Professionals were also aware that mICTs used to access the Internet by their patients to search for health-related information encouraged responsibility due to the necessity of making choices and selecting options, which helped them to work things out themselves. Professionals, on the whole, supported increased communication options for people with mood disorders. However, only a few professionals discussed directly

the digital communication preferences of their patients, and, in so doing, became aware that texting was preferred rather than talking when people are depressed. Becoming aware of this and then using this medium promoted contact between the professionals and their patients. Therefore, the study highlighted that frontline professional staff were not necessarily a barrier to the adoption of mICTs as previously thought. Instead, there required to be 'clinical buy-in' from professionals in positions of authority to provide their frontline staff with technology and resources that were fit for purpose to achieve the sought-after agile services (Taylor et al., 2015).

Clinical work is both highly mobile and ICT-intensive; the benefits of having access to, and use of, mICTs has been identified and discussed for several years, yet there remains a disconnect in their use and in related research (Fischer et al., 2003; Kjeldskov and Skov, 2004; Seneler, Basoglu and Daim, 2008; Svanæs, Alsos and Dahl, 2010). Electronic Patient Record (EPR) systems are mainly accessed through desk-based, fixed PC work stations, yet health and social care professionals are required to be increasingly flexible in where, when, and how they deliver care. In their work regarding the relationship between hospital discharge and deaths by suicide, Dougall et al. (2014) suggest that EPRs could improve the information flow between secondary and primary care settings for the purposes of suicide prevention, assessment and follow-up. MICTs hold the potential to exploit the use of EPRs in this manner, thereby facilitating the communication of sensitive information between health and social care professionals in location-independent contexts. Both patients and professionals are aware of their digital disconnect and the limitations that this has on professionals' opportunities to harness their mICTs to improve care and service delivery. Nevertheless, health and social care professionals in the study attempted to adapt their work to utilise, as best they could, the limited functionality of service provided mICTs and ICT systems. This observation was similar to professional behaviour noted in research undertaken by Abbott, Fuji and Galt (2015) and Johnson et al., (2017), where the focus of professional work remained unchanged, which was providing the best possible care to patients and 'doing the right thing'.

The main difference in regards to usability between PCs and mICTs is user engagement and interaction. When working at a desktop PC the user is usually sitting down at a desk looking at a large-screen monitor, with their hands on a keyboard, and/or mouse, with the PC tower being on the desk or stowed away underneath. The patient experience when using mICTs, in comparison, is interwoven into their web of social and physical life

(Svanæs, Alsos and Dahl, 2010). This type of action was summed up well in the work of Dourish (2001) and his concept of 'embodied interaction' – our presence and participation in the world:

> *Embodied interaction is the creation, manipulation, and sharing of meaning through engaged interaction with artifacts.* (Dourish, 2001, p. 126)

In terms of participants within the study and their use of mICTs, the theory of 'Centrality; through the praxis of interconnectivity' shares theoretical constructs with embodied interaction, as it:

> *Takes embodiment to be central to, even constituent of, the whole phenomenon.* (Dourish, 2001, p. 102)

Reflecting Dourish's embodied interaction, mICT use is considered to be unlike the foregrounded activity of using a desktop PC, instead, it sits on a continuum of attention, from active-to-dormant engagement. The study has theorised that it is not paradoxical, contradictory or polar relationships/behaviours that people engage in when using mICTs, as suggested by Jarvenpaa and Lang (2005), but rather, that they engage in continua of centrality. This reflects the experiences of the participants and their continuum of attachment with mICTs. While at times they may not be actively using their mICTs, the thought that they are close by is comforting, and, if at any point the whereabouts of the technology comes into question, a state of anxiety may be produced. Aligning closely with previous research (Baudendistel et al., 2015), this study found that patients viewed the prospect of being able to access and manage their own EPRs as both person-centred and an opportunity to enhance personal responsibility. Therefore, the sense of attachment that patients experience due to their active-to-dormant engagement with their mICTs suggests that facilitating mICT conversations with patients regarding their use would offer professionals opportunities to harness their un-tapped potential.

To harness self-management support potential, people need to form a collaborative relationship between them, their professionals and how they use mICTs. There is a clear disconnect between the Informal–Interpersonal and Formal–Institutional use of mICTs. Digitally reconnecting people with professionals through making mICTs part of the therapeutic encounter could help them manage their lives and health, support motivation, improve convenience, decrease feelings of stigma, access their facilitative capabilities, enhance privacy and credibility, and address inequalities through their cost-effectiveness.

Reconnecting digitally could facilitate and inform people to safely manage and outsource their needs using their mICTs, thereby, opening up opportunities to manage their mood disorders by acquiring relevant knowledge, engaging in help-seeking behaviour, receiving support, gaining a sense of control, learning time-management techniques, taking responsibility, and increasing their awareness.

Summary of main findings

The researcher was influenced by the work of Pini (2004) and her exploration of how holding different subject positions impacted upon her research process when undertaking her PhD. Reflexivity is a balancing act between acknowledging one's preconceptions and making use of them as a source of insight (Finlay, 2008). Therefore, reflexivity can be viewed as a continuum, where at one end there is the process of reflexivity; and at the other end, reflexion, which aims to achieve accuracy when reporting participants' accounts of their reality (Shaw, 2010). A reflexive approach facilitated the researcher to identify four subject positions that he held within his years of doctoral study; 'the person who used mICTs', 'the community mental health nurse', 'the PhD researcher' and latterly, 'the university lecturer'. The researcher identified himself as holding both insider and outsider subject positions. As an insider, he was both 'the person who used mICTs' and 'the community mental health nurse' and as an outsider, he attempted to be both 'the PhD researcher' and 'the university lecturer'. From an insider perspective, the researcher held some relevant knowledge of the study area as he was a mental health nurse, used mICTs and had undertaken a meta-synthesis, and therefore, held the opportunity to relate to study participants more empathically. However, this perspective also created the potential problem of pre-assumptions not being explicitly explored and explained (Pringle et al., 2011). One such issue was whether it was possible to hold an outsider perspective in the research process, when normally, before conducting interviews, other steps have already been undertaken such as literature reviews and ethics applications (Pringle et al., 2011). Therefore, in his attempt to adopt both an insider and outsider perspective, the researcher kept reflexive accounts; this was achieved by writing memos and keeping a reflective diary (as described in Chapter 3, pg.154), to help him explore his influence upon the research process and where he was positioned on the reflexivity continuum. Through reflexivity he found he was unable to be a neutral observer to people's use of mICTs; he could not solely be an objective outsider in the research process. Instead, his endeavours to be transparent and reflexive regarding the different subjective positions he

held offered context to his interpretations, enabling them to be questioned both by himself and those reading his work.

The meta-synthesis, completed by the researcher, identified a need to research how people with mood disorders, and their health and social care professionals, used existing mobile technology in their daily lives and practice. The research aim was to generate a theory, underpinned by a theoretical framework, which explained how people with mood disorders, and their health and social care professionals, use mICTs. A purposive, maximum-variance sampling strategy was used. Constructivist Grounded Theory methodology was chosen to complement user-centred design and human computer interaction research principles. Twenty-six patients and ten health and social care professionals were interviewed before theoretical saturation was achieved. There appeared to be a duality of mICT use; people with mood disorders used mICTS in everyday ways, and also, used mICTS more specifically, for helping them to look after themselves. ICT research in the past had either minimal or no patient involvement and had been designed separate from the person's life; therefore, mHealth was designed apart from the end user, as a metaphorical 'bolt on'. Often people downloaded and did not use software, or used apps only once or twice. No research had looked at how people used mICTs globally in their lives; how they used mICTs as people, and also how they used mICTs as people recovering from mood disorders.

People found ways of harnessing mICTs to help them recover, regardless of whether their health and social care professionals facilitated their mICT use; instead of relying on specific apps, they incorporated technology into their ways of living and lifestyles. For example: people used gaming to distract themselves from negative ruminating thoughts; used support forums on social networking sites; used alarms to remind them to take medication; used Google calendar to remind them of appointments due to reduced memory and concentration due to depression; used a weather app to check whether they could go for a walk as they are aware walking helped with their mood; checked tide times online, as again, walking on the beach was beneficial for their mood; used Google to check information online regarding medication, diagnosis, and healthy eating; or just surfed the Internet as a way of escapism when having a bad day. Therefore, specific technology designed for specific conditions, such as an app for moods, or a website for anxiety, was less of a priority when using mICTs. Instead, patients used and harnessed mICTs in ways that suited them, embedding the technology into their lives and lifestyles. Use was person-specific; no two people used their mICTs in the same way.

The theory has conceptually and theoretically helped to understand how mobile technology was used in daily life, and also, more specifically, how it could be used to manage recovery from mood disorders; capturing the person-specific, individualistic relationship people had with their mICTs. The core category and people's main concern, which emerged from the data, forming theory, was 'Centrality; through praxis of interconnectivity'. People with mood disorders used their mICTs to stay central within their on-and-offline worlds and held them central in their importance of attachment. Centrality was achieved through the 'Praxis or interconnectivity', the act of managing their connectedness through the use of mICTs. This interconnectivity facilitated people in their 'Outsourcing of needs', 'Management of needs' and helped them attend to their 'Disconnection of needs' through managing their continua of; 'Centrality of attachment', 'Centrality of location and self', 'Centrality of control, autonomy and the disconnected', 'Centrality of needs', 'Centrality of relationship', and 'Centrality of re-connection'. Management of these continua reflected the person; continua were flexible, they ebbed and flowed, and were dependent on the person and their use and relationship with their technology. For example, the 'Centrality of attachment' could be particularly strong for someone while in an acute phase of illness due to finding it difficult to leave their house, however, as they recovered, their 'Centrality of attachment' might lessen, as their needs were met less by their online world and replaced more so by their offline world. As such, their centrality flexed via the praxis of interconnectivity, from remaining inward-looking within the intrapersonal with limited mICT use, to achieving centrality across socio-ecological domains and increased use of their mICTs. The study theorised that people engaged in continua of centrality in order to meet their needs, irrespective of whether these needs were primarily, biological, psychological or social. These differences in how people used and related to their mICTs were encapsulated and explained by the theory as a whole. Both people recovering from mood disorders, and health and social care professionals, can use the findings of this study to help make sense of, and harness to their full potential, the mICTs they use in daily life and practice.

Evaluating the credibility of the emergent theory

An emergent theory within CGT does not seek to discover 'truth' nor does it provide generalisation; according to Charmaz (2014), CGT studies should firstly be evaluated for their credibility, referring to the rigour in which the concepts, categories and analysis was supported by empirical data that I collected. The use of a maximum variance sampling

strategy for people with mood disorders and the recruitment of multi-disciplinary mental health and social care professionals facilitated the collection of wide-ranging data. The topic guide that I used was updated to reflect the emerging data and the construction of theory in order to support theoretical sampling. Constant-comparative data analysis was used throughout, alongside memo and theoretical memo-writing, in an iterative and inductive process, to create a theory that was grounded in the data.

The second aspect is originality; the contribution by which the study's concepts, categories and analysis, extended and/or challenged existing practices and knowledge (Charmaz, 2014). The meta-synthesis identified a gap in the research relating to mICT use by people with mood disorders, into which the empirical study established, for the first time, a theory to explain such usages.

Resonance is the third aspect; the extent to which the findings, the categories and the theoretical renderings that resulted from the analysis of the data made sense to the participants (Charmaz, 2014). Because the study adhered to the constant-comparative method, theoretical sampling, memo and theoretical memo-writing, and the use of a reflective diary, I am confident that the theory achieved both data transformation and conceptualisation while still remaining close to and reflective of the data. This was demonstrated by participants meta-communicating with me their identification with coding from focused codes up to the theoretical categories and the main concern. The last patient to be recruited believed that his use and relationship with mICTs was captured and explained fully by the theory. A theory he felt he could easily understand and identify with when discussing it with me.

Finally, the fourth aspect in evaluating the credibility of CGT is usefulness; the categories and theory emerging from the data should be useful both for informing practice and for their contribution to existing knowledge (Charmaz, 2014). The emergent theory and its categories provided an understanding, for the first time, of how people with mood disorders made use of their mICTs to help look after themselves. This knowledge can be used by health and social care professionals, and also people from other professional backgrounds, to help harness the significant untapped potential that mICTs hold for supporting the self-management and self-management support of long-term conditions. The empirical study has provided a theory, which begins to fill the gap in our understanding of how people who are recovering from mood disorders make use of mICTs. In comparison to contemporary research in the field where microlevel research

has been undertaken to explain how people retrospectively fit their lives into using new apps, websites and other software purposefully designed for mood disorders, I studied the macro-level of use to understand how mICTs had been embedded into the lives of people with mood disorders, part of which was their use as self-management tools. This approach provided a firm theoretical foundation from which future service and care delivery, and also technological design, can be influenced.

Study strengths and limitations

The strength of the thesis is its combination of two empirical studies. Firstly, the completion of a systematic review and meta-synthesis provided an understanding of how people with mood disorders made use of ICTs, those of relevance to mobile technology, and, in so doing, created a typology of findings explaining these relationships. The rigorous and systematic review of the research literature clearly identified a gap in the existing research relating to mICT use by people with mood disorders, and their health and social care professionals. Secondly, the completion of a primary in-depth qualitative study created a grounded theory explaining how people with mood disorders, and their health and social care professionals, made use of mICTs.

There are a number of limitations to the study. The systematic review and meta-synthesis only used papers written in English, which may have limited access to research from different cultures and nationalities. Also, the in-depth primary study had inclusion criteria demanding that participants were able to communicate in English, and, again, this may have limited the findings of the research, in terms of multi-cultural aspects and differing worldviews. This is an important limitation as mICT use is likely to be different depending on the cultural setting. For example, in Western societies where increasing secularisation is experienced people tend to identify as 'I' whereas in Eastern societies people identify as 'We' within often extended families and communities (Ting, 2012). Therefore, how people relate to mICTs and use them for their social needs is likely to be different. The researcher chose not to analyse patient and health and social care professional data separately which could be viewed as a limitation. However, a joint approach to data analysis facilitated theory to be developed which encapsulated all data rather than separate groups. This was beneficial because it explored the relationships between both participant groups fully and led to the development of the theoretical category 'Disconnection of needs'. Using a gender lens in data analysis is a mechanism that can be used to help reveal ways in which mICT use is gendered; how it is shaped by,

informed by or biased towards women's or men's experiences and perspectives (Rutgers, 2018). Indeed, there may be benefits of adopting such an approach, for example, understanding the separately the mICT usage practices and influences of men and woman. An oversight of the in-depth primary study was that a gender lens was not adopted, and therefore, this could be seen as a limitation. The intention within the in-depth primary study was to treat participants and their data equally, both during interview and when analysed, in order to form a theoretical and conceptual understanding irrespective of gender. The maximum-variance sampling strategy was targeted to recruit participants with certain demographic characteristics. Whilst the pre-recruitment sampling numbers were not achieved, which could be viewed as a limitation, all quota areas within the sampling strategy were able to be recruited into. One of the most difficult quotas to recruit into was the over 55 age group, which only had one participant by the end of the study. Therefore, a possible limitation is the applicability of the findings to the population as a whole. However, this limitation is mitigated by the in-depth primary study's data analysis, which achieved a level of data transformation that reached the conceptual and theoretical level. In doing so, the theory transcended descriptive detail and individual use; instead it explained, rather than described or interpreted, latent patterns of behaviour occurring in the social settings where people used mICTs (Holton, 2009). Although the study's aim was not to generalise findings, due to it being a qualitative study, the participants were from a localised area in the northeast of Scotland and, therefore, a limitation was that the participants recruited may not have reflected the population of the UK as a whole.

Implications for clinical practice

Healthcare practitioners

The majority of patients had not used apps specifically designed to support them with their mood disorders, and those who had, quickly stopped using them due to their unhelpful functionality and usability. Instead, patients had found ways to use the mobility that their mICT's hardware provided, in conjunction with in-built software, downloaded apps and connection to the Internet, to meet their unmet needs. Importantly, this was carried out on equipment owned and used by patients themselves. An important focused code to emerge from the data was 'Being digitally disconnected'. For the reasons discussed earlier, people with mood disorders and the mental health and social care professionals supporting them were disconnected in terms of mICT use with one another.

The digital disconnect identified that self-management support between patients and health and social care professionals using mICTs was either not being provided, or, if it was, was presented in basic formats. The findings of the primary in-depth study identified the sense of importance that patients placed upon their mICTs, and, in particular, as useful tools to help them to look after themselves. The present study also identified that most health and social care professionals were aware of a digital disconnect and the implications that this had on care and service delivery. Very apparent was the lack of conversation between professionals and their patients regarding how their patients used mICTs. Also apparent was the frustration of trying to deliver agile community working, with increasing demands for EPR completion with basic mobile phone technology that lacked usability and functionality.

The existing ICT infrastructure within the health and social care service used for the study appeared unable to provide what the participants of the in-depth primary study wanted. Patients wanted the ability to use their mICTs to interact with health and social care systems in similar ways to those that already existed for them as people in society. Of particular importance was the option of having choice in communication medium between them as patients, the professionals with whom they worked, and the services with which they interacted. For example, the majority of patients did not like to use their mobile/smartphone as a telephone, preferring the asynchronous nature of text messaging, instant messaging or email. However, the main form of communication open to patients when communicating with Services was telephone and/or answer machine.

It would be helpful to raise the awareness of health and social care professionals regarding how people with mood disorders make use of existing mICTs in their lives for self-care and self-management purposes. Becoming aware of the potential role that mICTs can play in supporting the overall care and care delivery of mental health services could motivate and embolden health and social care professionals to incorporate mICT use into their clinical dialogue. Having conversations with patients regarding what mICTs they use and how they use them is the first step in understanding how they can be harnessed to facilitate the recovery process. Thereafter, using the theoretical model developed in the in-depth study could help guide discussions in regards to how they manage their needs, outsource their needs, and deal with the disconnection of needs in the process of centrality through praxis of interconnectivity. Further work, therefore, is required to adapt the theoretical model into an assessment tool for clinicians. This would provide a

means of measuring people's use of their mICTs in regards to 'Outsourcing of needs', 'Management of needs', and 'Disconnection of needs' with the findings indicating levels of centrality. This information could support clinicians to focus on areas of peoples' mICT use, or non-use, to increase patients' centrality across socio-ecological domains and facilitate the meeting of their needs.

Healthcare policy

In terms of advice for NHS decision-makers to meet key policy ambitions such as access to treatment, joined-up accessible services and person-centred support and communications (The Scottish Government, 2015, The Scottish Government, 2017), this would be twofold. Firstly, it would be beneficial to equip those staff who provide direct patient care in a community setting, where mobility is a necessary and important part of their work, with appropriately specified mICTs with the functionality and usability necessary to facilitate care delivery. Secondly, it would be advisable to support staff to have conversations with their patients regarding mICT use. This support could take the form of informational support, such as policy and guidance documents, or practical support, such as on-line and in-person staff training. From a clinical perspective, therefore, examining how patients use mICTs arguably needs to be included in the assessment process. This would facilitate professionals to identify their patients' current use of mICTs and inform them on how best to support their patients to fully harness their mICTs for self-management purposes. An example of digital support could be providing 'digital hygiene' training to patients to help them to navigate and negotiate their use of mICTs successfully. Utilising mICTs for self-management support purposes by services arguably requires the above recommendations to occur before their full potential can be realised. Thereafter, novel approaches could be adopted to explore and evaluate the synergies and catalytic interactions related to complex interventions (Harris et al., 2013, 2016). Specifically, complex interventions should be developed that are associated with understanding how the people who use health and social care services, their professionals, and the care delivery systems, interact with one another through mICTs in the processes of self-management and self-management support. Most patients own and use at least one mICT and, therefore, they hold the potential to become powerful self-management tools. What is required to harness this untapped potential is for services to support and empower their staff to have conversations relating to their patients' use of mICTs and to provide them with mICTs that are fit for purpose. This doctoral study will hopefully have an

impact on both clinical practice and policy design through the research it has presented, and, in so doing, will help to realise the above recommendations.

Implications for future research

Human computer interaction research has increasingly turned to qualitative methods in order to explore users' thoughts and feelings regarding technology and how they use technology in their everyday lives (Klasnja, Consolvo and Pratt, 2011). In relation to this study, the patient and their health and social care professionals were seen as the end-users of technology. HCI theory, therefore, and the use of CGT, provided a mechanism with which to analyse usability in complex socio-ecological systems where the nature of HCI phenomena, such as user engagement, satisfaction, privacy and trust, advocated the need for:

> *building HCI theory (in research fields that are conceptually immature) which is empirically based and systematically developed; integrating current interdisciplinary knowledge into the theory; dealing with the complex nature of the phenomena (e.g. user perceptions, privacy, trust, technology engagement); and, providing designers with accessible and applicable guidance.* (Adams, Lunt and Cairns, 2008, p. 154)

Designing apps and websites for specific health conditions without first speaking to people and understanding their current use of mICTs has meant that the design of condition-specific technology has been, arguably, at best, only an occasionally used bolt-on to people's lives, and, at worst, avoided. As such, using co-creation methods for the successful involvement of all stakeholders is recommended in the future design of mICTs where a collaborative, context-sensitive, interactive and socially engaged approach is undertaken (Battersby et al., 2017).

Through completion of a meta-synthesis and primary in-depth study, I have completed the first two development stages of a complex intervention; those being, firstly, the identification of the evidence base, and secondly, the identifying and developing of theory (Medical Research Council, 2008). Understanding the views and experiences of those patients with mood disorders who currently use mICTs has provided an insight into different contexts, such as when complex interventions are implemented in complex systems within the context of routine delivery of care. Therefore, through empirically derived approaches, this study has provided a firm basis for future complex intervention

design in order to provide practicable solutions when harnessing the self-management potential of mICTs in clinical practice.

The term 'medicalisation' describes a process whereby nonmedical problems become defined and treated as medical issues (Conrad, 2007). Once such concern is the over medicalising or professionalising of self-care. The researcher is cognisant of these issues in the future development of an assessment tool for understanding mICT use by people with mood disorders. The in-depth primary study highlighted the significant untapped potential of mICTs due to the 'digital disconnect' and identified approaches for self-management. The assessment tool will help professionals understand people's use of the mICTs they already own and use. It is not intended to medicalise mICTs, far from it, it is to help professionals better understand the relationship people have with the pre-existing mobile technology in their daily lives, and in the process, support people to use mICTs in ways that might help them look after themselves.

Further research is warranted to support the transfer of the in-depth study's theory to other substantive areas in mental health, and, possibly, physical health conditions, to enhance the understanding of condition-specific mICT usage. Research such as this would also support the development of formal theory to explicate how mICTs are used to manage well-being by people in general. The study highlighted how people use mICTs to mediate between them and the world they live in; further research into this complex act is recommended, in order to fully discover the potential that these tools may have to offer.

Conclusion

The thesis diverged from the topics of the most published research to date on ICTs and health. Rather than concentrating on the micro-level, such as specific websites and apps, I endeavoured to focus the lens of my research upon the macro-level understanding; how mICTs were embedded into the lives of people with mood disorders. It was important to understand the ubiquity, mobility and accessibility that mICTs offered people; mICTs are likely permanent fixtures in our world, viewed as ubiquitous, and their ownership, usability and functionality perceived as a need. There are unlikely to be leaps and bounds forwards in regards to the mobility of ICTs. Over the past 15 years, the most significant shift has been the gradual transition from PC workstations to mICTs. Mobile telephones, smartphones, laptops and tablet-PCs, and the software used or accessed through them, such as websites, forums and apps, will be upgraded, but a paradigm shift in technology

is unlikely. The mobility of technology may become less focused on hardware, for instance, the type of smartphone or tablet used, in favour of the user investing in an increasingly cloud-based system and architecture. The typology of findings, completed through the study's meta-synthesis, established an explanatory framework to understanding how ICTs became embedded into peoples' lives, and, more specifically, how they were being used to help look after themselves. The in-depth primary study facilitated the refinement and transformation of data from a typology of findings to a conceptual, grounded theory. The current study purposely did not research a specific app, website, or piece of hardware; rather, it constructed a macro-level, theoretical understanding of how, through their use, mICTs affected people's lives, those who experienced mood disorders, and their health and social care professionals. Therefore, it is hoped, the theory will not become redundant as technology develops; instead, it will provide a firm underpinning for future technological design. The study has created an empirical basis to help guide and harness the potential that mICTs hold for delivering self-management and self-management support; thereby facilitating collaborative person-centred care to support people in their active recovery from mood disorders. More importantly, it will guide the incorporation of mICTs into the therapeutic setting and inform clinicians and services how best to harness the technology to support people's recovery. This study has begun to close a gap in research regarding how people with mood disorders use mICTs in their everyday lives, and, more specifically, for looking after themselves. This has provided a global understanding and a solid theoretical foundation to guide the future design of ICT systems within services, the incorporation of mICTs into the therapeutic dialogue and care delivery, and for informing the design of mobile technology, specifically for health conditions. MICTs are ubiquitous and are embedded into the lives of people with mood disorders, holding significant un-tapped potential to facilitate recovery. It is hoped that this research offers the knowledge and insights necessary to bridge the digital disconnect; thereby enabling the full potential of mICTs to be managed and utilised by both people with mood disorders and their health and social care professionals.

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Appendices

Appendix 1: Background review search terms and results

PsycINFO Search String for Background Study		
#	**Query**	**Results**
S96	S88 AND S92 Limiters - Linked Full Text; Publication Year: 2003-2013	1,742
S95	S8 AND S31 AND S88 AND S92	81
S94	S8 AND S31 AND S92	758
S93	S88 AND S92	8,664
S92	S89 OR S90 OR S91	123,638
S91	TI Review	107,397
S90	TI Systematic review	5,336
S89	DE "Literature Review"	21,931
S88	S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 OR S57 OR S58 OR S59 OR S60 OR S61 OR S62 OR S63 OR S64 OR S65 OR S66 OR S67 OR S68 OR S69 OR S70 OR S71 OR S72 OR S73 OR S74 OR S75 OR S76 OR S77 OR S78 OR S79 OR S80 OR S81 OR S82 OR S83 OR S84 OR S85 OR S86 OR S87	301,886
S87	TX Samsung	535
S86	TX HTC	33
S85	TX Nokia	89
S84	TX WWW	384
S83	TX Samsung Galaxy	1
S82	TX Web	27,636
S81	TX World Wide Web	1,440
S80	TX Internet	72,819
S79	TX Network$	84,680
S78	TX Ethernet	4
S77	TX Wire$	1,421
S76	TX 4G	870
S75	TX 3G	3,152
S74	TX Broadband	1,197
S73	TX Connect$	7,109
S72	TX Touch screen	367

S71	TX Context-aware systems	19
S70	TX Artificial intelligence	13,906
S69	Cellular phone	1,689
S68	TX Telemedicine	2,961
S67	TX User-centred design	54
S66	TX E-mental health	68
S65	TX Mobile app$	12
S64	TX Internet treatment	63
S63	DE "Multimedia" OR DE "Audiovisual Communications Media"	1,986
S62	TX Online	42,381
S61	DE "Online Therapy" OR DE "Online Social Networks"	3,197
S60	TX Virtual reality	5,049
S59	TX Virtual realit$	0
S58	TX Computer-assisted	20,499
S57	TX Internet delivered	218
S56	TX Computer-based	6,373
S55	DE "Technology" OR DE "Assistive Technology" OR DE "Biotechnology" OR DE "Information Technology" OR DE "Nanotechnology" OR DE "Nuclear Technology" OR DE "Technology Transfer" OR DE "Information Technology" OR DE "Automated Information Processing" OR DE "Bioinformatics"	28,686
S54	TX Mobile technology	451
S53	TX Electronic health	440
S52	TX Mobile health	87
S51	TX SMS	847
S50	TX Windows	9,504
S49	TX IOS	9,121
S48	TX Tablet$	2,055
S47	TX iPad	86
S46	TX Apple	1,313
S45	TX Telehealth	764
S44	TX Software	20,100
S43	TX Mobile$	10,435
S42	TX App$	2,660
S41	TX Windows phone	2
S40	TX black berry	3

S39	TX blackberry	226
S38	TX Android	117
S37	TX iPhone	114
S36	TX smart phone	97
S35	TX Smartphone	216
S34	DE "Computer Assisted Instruction" OR DE "Computer Usage" OR DE "Computer Mediated Communication" OR DE "Computers" OR DE "Analog Computers" OR DE "Computer Games" OR DE "Digital Computers" OR DE "Microcomputers" OR DE "Computer Applications" OR DE "Computer Assisted Therapy" OR DE "Computer Literacy" OR DE "Computer Peripheral Devices" OR DE "Computer Software" OR DE "Mobile Devices" OR DE "Cellular Phones"	45,127
S33	TX mHealth	49
S32	TX eHealth	315
S31	S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30	519,913
S30	TX Self help	8,359
S29	TX Personal control	1,953
S28	TX Personal responsibility	1,714
S27	TX Chronic disease management	309
S26	DE "Chronic Mental Illness" OR DE "Chronic Psychosis" OR DE "Chronic Illness" OR DE "Chronic Alcoholic Intoxication" OR DE "Chronic Fatigue Syndrome" OR DE "Chronic Mental Illness" OR DE "Chronic Pain"	19,431
S25	TX Active participation	1,587
S24	DE "Participation"	5,877
S23	TX Agentic	850
S22	DE "Self Monitoring"	2,352
S21	DE "Self Regulation" OR DE "Self Management"	9,173
S20	TX Symptom management	2,920
S19	TX Goal attainment	1,733
S18	DE "Goal Orientation"	1,897
S17	DE "Empowerment"	4,791
S16	TX Control$	403,310
S15	DE "Self Efficacy"	13,881
S14	TX Self management support	120

S13	DE "Self Management" OR DE "Self Instructional Training" OR DE "Disease Management" OR DE "Self Help Techniques"	11,170
S12	TX Coping	64,708
S11	DE "Coping Behavior"	36,213
S10	TX Self care	7,699
S9	DE "Self Management" OR DE "Self Instructional Training"	4,392
S8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7	156,293
S7	TX "Mild to moderate"	5,420
S6	TX Mood	57,679
S5	TX Major depression	87,479
S4	TX Dysthymia	2,139
S3	DE "Dysthymic Disorder"	1,357
S2	DE "Affective Disorders" OR DE "Bipolar Disorder" OR DE "Major Depression" OR DE "Mania" OR DE "Seasonal Affective Disorder"	108,045
S1	Depress$	1,075

Medline and Embase search using Ovid for Background Study		
1	Depress$.mp.	895,915
2	exp depression/	381,758
3	exp affect/	68,966
4	exp dysthymia/	5,866
5	"Mild to moderate".mp.	97,333
6	exp mood/ or exp mood disorder/	487,943
7	exp major depression/	34,096
8	1 or 2 or 3 or 4 or 5 or 6 or 7	1,120,313
9	exp self care/	88,659
10	Self management.mp.	18,449
11	exp coping behavior/	136,211
12	Coping.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	86,262
13	Self management support.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	773

14	exp self concept/	199,035
15	Self-efficacy.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	32,911
16	Control$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	9,501,295
17	exp empowerment/	12,299
18	exp goal attainment/	2,061
19	Symptom management.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	5,444
20	Self regulation.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	8,914
21	exp self monitoring/	3,620
22	Agentic.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	346
23	Active participation.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	5,178
24	exp chronic disease/	384,986
25	Chronic disease management.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	2,466
26	exp responsibility/ or exp health behavior/	395,236
27	Personal responsibility.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,918
28	Personal control.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,982
29	exp self help/	11,223
30	9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29	10,402,662
31	exp information technology/ or exp medical informatics/ or exp Internet/ or exp telemedicine/	483,319
32	eHealth.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,502
33	mHealth.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	316
34	exp microcomputer/	30,556
35	Handheld computer$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	884
36	exp mobile phone/ or exp personal digital assistant/ or exp computer program/ or exp Internet/	372,779
37	Smartphone$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,281

38	Smart phone$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	455
39	iPhone.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	536
40	Android.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,464
41	blackberry.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	751
42	black berry.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	21
43	Windows mobile.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	46
44	Windows phone.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	7
45	App.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	27,773
46	App$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	9,486,538
47	Mobile$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	131,088
48	Software.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	257,236
49	exp telehealth/	34,452
50	Apple.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	17,258
51	iPad.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	813
52	Tablet.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	66,715
53	IOS.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	12,845
54	Windows.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	26,014
55	SMS.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	7,089
56	Mobile health.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	3,585
57	Electronic health.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	13,035
58	Mobile technolog$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	690
59	exp technology/	448,457

60	Computer-based.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	23,065
61	Internet delivered.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	422
62	Mobile app$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	451
63	E-Mental Health.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	90
64	User-centred design.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	124
65	Cellular phone$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	5,320
66	exp artificial intelligence/	68,352
67	Context-aware system$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	15
68	Touch screen$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	1,342
69	Connect$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	591,511
70	Broadband.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	11,877
71	3G.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	4,351
72	4G.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	5,244
73	Wire$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	88,625
74	Ethernet.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	422
75	exp computer network/	79,264
76	Network$.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	564,140
77	World Wide Web.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	6,066
78	Web.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	104,780
79	Samsung Galaxy.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	5
80	Samsung.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	947
81	Nokia.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	184

82	HTC.mp. [mp=ti, ab, ot, nm, hw, kf, ps, rs, ui, sh, tn, dm, mf, dv, kw]	2,624
83	31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82	11,187,679
84	Literature review.m_titl.	35,484
85	Systematic review.m_titl.	62,059
86	Review.m_titl.	530,814
87	84 or 85 or 86	530,814
88	8 and 30 and 87	7,788
89	83 and 87	161777
90	8 and 30 and 83 and 87	3,643
91	limit 90 to English language	3,474
92	limit 91 to full text	358
93	remove duplicates from 91	2,431

CINAHL Search String for Background Study		
#	Query	Results
S98	S25 AND S29 AND S91 AND S95 (Limiters - Full Text; English Language)	973
S97	S91 AND S95	58,036
S96	S25 AND S29 AND S95	2,802
S95	S92 OR S93 OR S94	91,339
S94	(MH "Literature Review+")	23,772
S93	TI Review	79,748
S92	(MH "Systematic Review")	20,479
S91	S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 OR S57 OR S58 OR S59 OR S60 OR S61 OR S62 OR S63 OR S64 OR S65 OR S66 OR S67 OR S68 OR S69 OR S70 OR S71 OR S72 OR S73 OR S74 OR S75 OR S76 OR S77 OR S78 OR S79 OR S80 OR S81 OR S82 OR S83 OR S84 OR S85 OR S86 OR S87 OR S88 OR S89 OR S90	2,122,963
S90	TX HTC	134
S89	TX Nokia	140

S88	TX Samsung Galaxy	9
S87	TX Samsung	1,603
S86	TX Web	136,170
S85	TX WWW	47,641
S84	TX World Wide Web	61,976
S83	TX Internet	84,837
S82	TX Network*	154,195
S81	TX Ethernet	307
S80	TX Wireless	13,171
S79	TX 4G	6,255
S78	TX 3G	6,918
S77	(MH "Telecommunications+") OR "Broadband"	70,761
S76	TX Connect*	145,501
S75	(MH "Computer Input Devices+") OR "Touch screen*"	3,043
S74	TX Context-aware systems	3
S73	(MH "Artificial Intelligence+")	6,842
S72	TX Cel* phone*	5,417
S71	TX Celular phone*	0
S70	TX Celular phon*	0
S69	(MH "Telehealth+")	10,140
S68	(MH "Telemedicine+")	5,923
S67	TX User-centred design	103
S66	TX E-mental health	155
S65	TX Mobile app*	561
S64	TX Internet treatment	48
S63	(MH "Multimedia")	1,384
S62	(MH "Online Systems+") OR (MH "Online Services")	15,216
S61	TX Online	1,350,105
S60	TX Virtual realit*	3,978
S59	TX Computer-assist*	40,794
S58	TX Internet delivered	179
S57	TX Computer-based	8,303
S56	(MH "Technology+")	35,874
S55	TX Mobile technolog*	650
S54	TX Electronic health	7,425
S53	TX Mobile health	1,868

S52	TX SMS	1,566
S51	TX Windows	18,591
S50	TX IOS	6,048
S49	TX Tablet*	20,784
S48	TX iPad*	1,391
S47	TX Apple	7,151
S46	(MH "Telehealth")	2,965
S45	(MH "Software+") OR (MH "Communications Software+") OR (MH "Software Design")	208,553
S44	TX Mobile*	27,169
S43	(MM "World Wide Web Applications+")	4,395
S42	TX App*	914,026
S41	TX Windows phon*	29
S40	TX Windows mobil*	72
S39	TX black berry	37
S38	TX blackberry	948
S37	TX Android*	728
S36	TX iPhon*	1,473
S35	(MH "Wireless Communications") OR (MH "Telephone") OR (MH "Phonology") OR (MH "Text Messaging") OR (MH "Telenursing")	22,376
S34	TX smartphon*	1,702
S33	TX Handheld computer*	695
S32	(MH "Computers, Hand-Held") OR (MH "Computers, Portable+") OR (MH "Attitude to Computers") OR (MH "Microcomputers+") OR (MH "Macintosh Microcomputers") OR (MH "IBM Compatible Microcomputers") OR (MH "Computer Memory") OR (MH "Computers and Computerization+")	389,370
S31	TX mHealth	224
S30	TX eHealth	1,670
S29	S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S26 OR S27 OR S28	697,858
S28	TX Self help	10,665
S27	TX Personal control	2,540
S26	TX Personal responsibility	3,270
S25	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S24	245,627

S24	(MH "Chronic Disease")	37,102
S23	(MH "Disease Management")	7,727
S22	TX Active participation	5,415
S21	TX Agentic	304
S20	TX Self monitoring	6,549
S19	(MH "Self Regulation")	2,481
S18	TX Symptom management	11,837
S17	(MH "Goal Attainment")	939
S16	(MH "Empowerment")	7,311
S15	TX "Control*"	853,419
S14	(MH "Self-Efficacy")	10,319
S13	TX Self management support	818
S12	(MH "Coping+")	20,849
S11	TX Self management	15,588
S10	(MH "Self Care+")	27,821
S9	TX "Major depress*"	14,646
S8	TX "Mood"	41,157
S7	TX "Mild to moderate"	13,736
S6	TX "Dysthymia"	1,384
S5	(MH "Dysthymic Disorder")	292
S4	TX "Affect* "	332,209
S3	(MH "Affective Symptoms+")	72,627
S2	TX "Depress*"	169,243
S1	(MH "Depression+") OR (MH "Affective Disorders+")	61,980

**Appendix 2: Background chapter structured review results**

Systematic reviews
BARNES, C., HARVEY, R., WILDE, A., HADZI-PAVLOVIC, D., WILHELM, K. & MITCHELL, P. B. 2009. Review of the quality of information on bipolar disorder on the Internet. *Australian & New Zealand Journal of Psychiatry,* 43**,** 934-945.
BENDER, J. L., RADHAKRISHNAN, A., DIORIO, C., ENGLESAKIS, M. & JADAD, A. R. 2011. Can pain be managed through the Internet? A systematic review of randomized controlled trials. *Pain (03043959),* 152**,** 1740-1750.
CRABB, R. M., CAVANAGH, K., PROUDFOOT, J., LEARMONTH, D., RAFIE, S. & WEINGARDT, K. R. 2012. Is computerized cognitive-behavioural therapy a treatment option for depression in late-life? A systematic review. *British Journal of Clinical Psychology,* 51**,** 459-464.
CUMMINS, C. O., PROCHASKA, J. O., DRISKELL, M., EVERS, K. E., WRIGHT, J. A., PROCHASKA, J. M. & VELICER, W. F. 2003. Development of review criteria to evaluate health behavior change Websites. *Journal of Health Psychology,* 8**,** 55-62.
DOLEMEYER, R., TIETJEN, A., KERSTING, A. & WAGNER, B. 2013. Internet-based interventions for eating disorders in adults: a systematic review. *BMC Psychiatry,* 13**,** 207.
EHRENREICH, B., RIGHTER, B., ROCKE, D. A., DIXON, L. & HIMELHOCH, S. 2011. Are mobile phones and handheld computers being used to enhance delivery of psychiatric treatment? A systematic review. *Journal of Nervous & Mental Disease,* 199**,** 886-91.
ELAND-DE KOK, P., VAN OS-MEDENDORP, H., VERGOUWE-MEIJER, A., BRUIJNZEEL-KOOMEN, C. & ROS, W. 2011. A systematic review of the effects of e-health on chronically ill patients. *Journal of Clinical Nursing,* 20**,** 2997-3010.
FIORDELLI, M., DIVIANI, N. & SCHULZ, P. J. 2013. Mapping mHealth Research: A Decade of Evolution. *Journal of Medical Internet Research,* 15**,** e95-e95.
GARCÍA-LIZANA, F. & MUÑOZ-MAYORGA, I. 2010. Telemedicine for depression: a systematic review. *Perspectives in Psychiatric Care,* 46**,** 119-126.

GRIFFITHS, K. M., CALEAR, A. L. & BANFIELD, M. 2009a. Systematic review on Internet Support Groups (ISGs) and depression (1): Do ISGs reduce depressive symptoms? *Journal of Medical Internet Research,* 11**,** e40-e40.

GRIFFITHS, K. M., CALEAR, A. L., BANFIELD, M. & TAM, A. 2009b. Systematic review on Internet Support Groups (ISGs) and depression (2): What is known about depression ISGs? *Journal of Medical Internet Research,* 11**,** e41-e41.

GRIFFITHS, K. M., FARRER, L. & CHRISTENSEN, H. 2010. The efficacy of Internet interventions for depression and anxiety disorders: a review of randomised controlled trials. *Medical Journal of Australia,* 192**,** S4-11.

HARRISON, V., PROUDFOOT, J., WEE, P. P., PARKER, G., PAVLOVIC, D. H. & MANICAVASAGAR, V. 2011. Mobile mental health: Review of the emerging field and proof of concept study. *Journal of Mental Health,* 20**,** 509-524.

HOULE, J., GASCON-DEPATIE, M., BÉLANGER-DUMONTIER, G. & CARDINAL, C. 2013. Depression self-management support: A systematic review. *Patient Education & Counseling,* 91**,** 271-279.

HUTCHISON, A. J. & BRECKON, J. D. 2011. A review of telephone coaching services for people with long-term conditions. *Journal of Telemedicine & Telecare,* 17**,** 451-458.

JONES, M. C., MACGILLIVRAY, S., KROLL, T., ZOHOOR, A. R. & CONNAGHAN, J. 2011. A thematic analysis of the conceptualisation of self-care, self-management and self-management support in the long-term conditions management literature. *Journal of Nursing & Healthcare of Chronic Illnesses,* 3**,** 174-185.

KALTENTHALER, E., SUTCLIFFE, P., PARRY, G., BEVERLEY, C., REES, A. & FERRITER, M. 2008. The acceptability to patients of computerized cognitive behaviour therapy for depression: a systematic review. *Psychological Medicine,* 38**,** 1521-30.

KUIJPERS, W., GROEN, W. G. & AARONSON, N. K. 2013. A systematic review of web-based interventions for patient empowerment and physical activity in chronic diseases: relevance for cancer survivors. *Journal of Medical Internet Research,* 15**,** e37-e37.

LEACH, L. S. & CHRISTENSEN, H. 2006. A systematic review of telephone-based interventions for mental disorders. *Journal of Telemedicine & Telecare,* 12**,** 122-129.

MACEA, D. D., GAJOS, K., DAGLIA CALIL, Y. A. & FREGNI, F. 2010. The efficacy of web-based cognitive behavioral interventions for chronic pain: a systematic review and meta-analysis. *Journal of Pain,* 11**,** 917-929.

MELVILLE, K. M., CASEY, L. M. & KAVANAGH, D. J. 2010. Dropout from Internet-based treatment for psychological disorders. *British Journal of Clinical Psychology,* 49**,** 455-471.

MOORE, D. & AYERS, S. 2011. A review of postnatal mental health websites: help for healthcare professionals and patients. *Archives of Women's Mental Health,* 14**,** 443-452.

NEWMAN, M. G., SZKODNY, L. E., LLERA, S. J. & PRZEWORSKI, A. 2011. A review of technology-assisted self-help and minimal contact therapies for anxiety and depression: Is human contact necessary for therapeutic efficacy? *Clinical Psychology Review,* 31**,** 89-103.

PARÉ, G., JAANA, M. & SICOTTE, C. 2007. Systematic review of home telemonitoring for chronic diseases: the evidence base. *Journal of the American Medical Informatics Association,* 14**,** 269-277.

ROSSER, B. A., VOWLES, K. E., KEOGH, E., ECCLESTON, C. & MOUNTAIN, G. A. 2009. Technologically-assisted behaviour change: a systematic review of studies of novel technologies for the management of chronic illness. *Journal of Telemedicine & Telecare,* 15**,** 327-338.

SOLOMON, M. R. 2008. Information technology to support self-management in chronic care: a systematic review. *Disease Management & Health Outcomes,* 16**,** 391-401.

VAN'T HOF, E., CUIJPERS, P. & STEIN, D. J. 2009. Self-help and Internet-guided interventions in depression and anxiety disorders: a systematic review of meta-analyses. *CNS Spectrums: The International Journal of Neuropsychiatric Medicine,* 14**,** 34-40.

VAN ALLEN, J., DAVIS, A. M. & LASSEN, S. 2011. The use of telemedicine in pediatric psychology: Research review and current applications. *Child and Adolescent Psychiatric Clinics of North America,* 20**,** 55-66.

Appendix 3: Search, retrieval and validation system
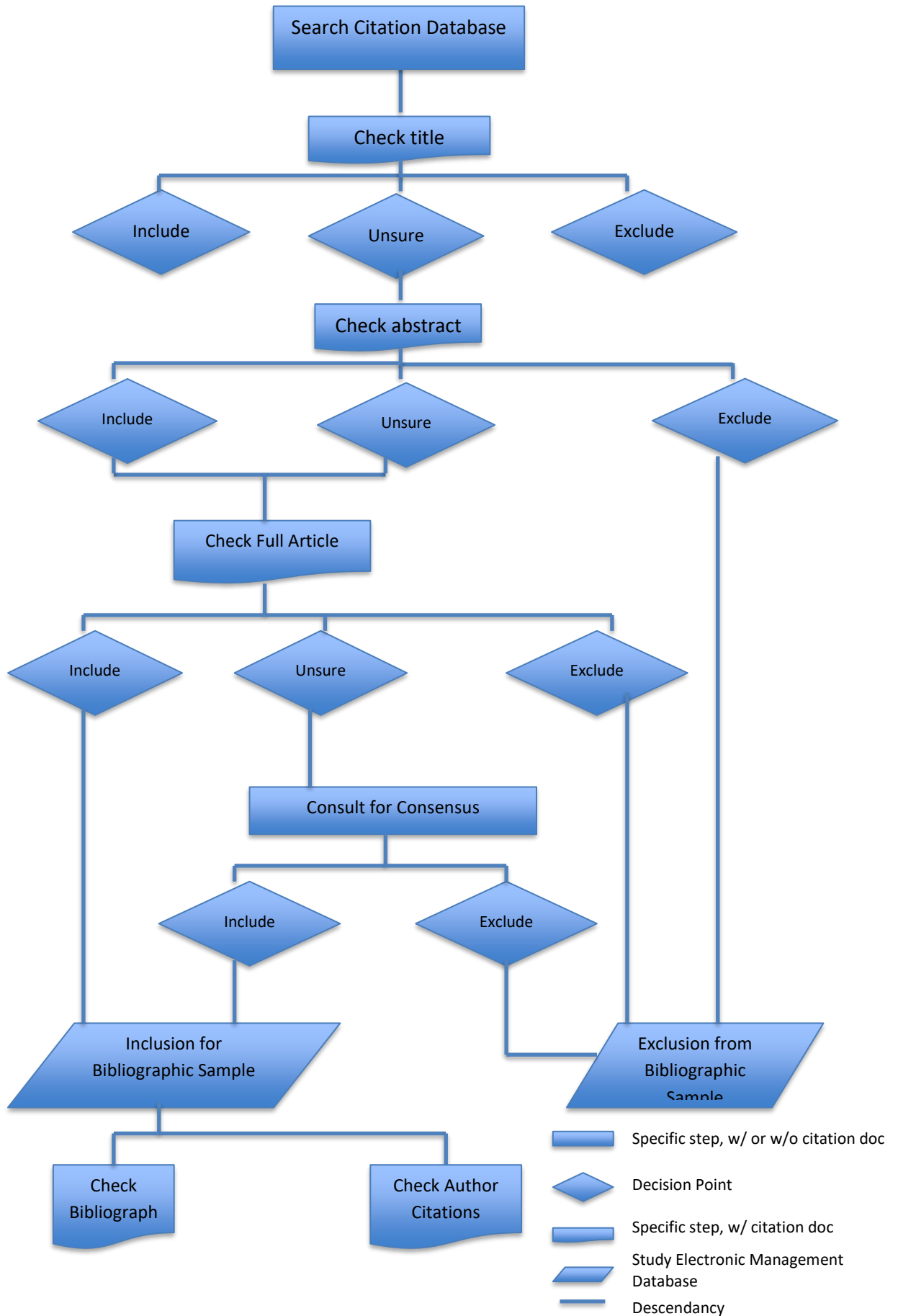
Appendix 4: Meta-synthesis publication

Exploring the Use of Information and Communication Technology by People With Mood Disorder: A Systematic Review and Metasynthesis

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Abstract

Background: There is a growing body of evidence relating to how information and communication technology (ICT) can be used to support people with physical health conditions. Less is known regarding mental health, and in particular, mood disorder.

Objective: To conduct a metasynthesis of all qualitative studies exploring the use of ICTs by people with mood disorder.

Methods: Searches were run in eight electronic databases using a systematic search strategy. Qualitative and mixed-method studies published in English between 2007 and 2014 were included. Thematic synthesis was used to interpret and synthesis the results of the included studies.

Results: Thirty-four studies were included in the synthesis. The methodological design of the studies was qualitative or mixed-methods. A global assessment of study quality identified 22 studies as strong and 12 weak with most having a typology of findings either at topical or thematic survey levels of data transformation. A typology of ICT use by people with mood disorder was created as a result of synthesis.

Conclusions: The systematic review and metasynthesis clearly identified a gap in the research literature as no studies were identified, which specifically researched how people with mood disorder use mobile ICT. Further qualitative research is recommended to understand the meaning this type of technology holds for people. Such research might provide valuable information on how people use mobile technology in their lives in general and also, more specifically, how they are being used to help with their mood disorders.

Introduction

Mood disorder is a diagnostic category containing, among others, diagnoses such as major depression and bipolar depression [1]. For some, having a mood disorder can be a lifelong problem and the need to support people with such long-term conditions is a major challenge facing health care providers. In order to effectively manage their health and wellbeing, people with a mood disorders may have to master a range of skills and make lifestyle changes, either independently or with the support of others, such as family, friends, third sector services, and mental health and social care professionals [2].

In mental health care systems designed primarily to treat acute episodes of care, the rise in long-term conditions has threatened the sustainability of services and ultimately failed to meet the needs of patients with ongoing care management and the delivery of psychosocial interventions [3]. Developments in information and communication technology (ICT) (such as the use of the Internet or computer technology and electronic systems) have begun to provide new ways for people to manage their health. ICT interventions have become affordable, accessible, and versatile such as through the use of Web-based self-help resources [4]. Psychological interventions have been effectively delivered through ICTs [5] while having the ability to reach rural areas within diverse populations and settings [6].

ICTs are increasingly being used for direct patient care [7]. eHealth is the umbrella term used for a broad range of health informatics applications that facilitate the management and delivery of health-related care, including the dissemination of health-related information, storage, and exchange of clinical data, interprofessional communication, computer-based support, patient-provider interaction, education, health service management, health communities, and telemedicine, among other functions [8].

In mental health care, eHealth technologies can facilitate the delivery of a wide range of effective treatments for a variety of clinical problems. They have widened the choices available to patients for selecting an approach best suited to manage their long-term condition [7]. Such choices include: computerized cognitive behavioral therapy (cCBT) [9]; computerized bibliotherapy, and Web-based self-help resources/patient information websites [10]; online counselling [11]; patient forums, blogs, social media/social networking sites (SNSs) [12]; and online self-management groups [13].

More recently, a shift has occurred toward making technologies more portable or mobile, evidenced by the recent rise in smartphone and tablet ownership and usage [14]. Consequently, mHealth has become important for the delivery of health and health services. Improvements in reliability and broadband coverage means greater and faster Internet access for these mobile technologies. As a result, mobile devices have changed the way that consumers manage their health and engage with the health care system [15].

Evidence suggests that mHealth can facilitate the provision of effective interventions and support the self-management of long-term conditions [15]. Self-management is an interactive, dynamic, and daily set of activities by which people manage their long-term condition through overlapping skills, tasks, and processes. [16].

However, despite its growing popularity over the last decade, systematic research on the use of mHealth as a means of improving health outcomes remains scarce [17,18]. Many mHealth development studies to date, mostly outcome studies and randomized control trials (RCT), have failed to include patients or end users in a meaningful way or considered them only in limited ways in the design process [5,14,19-22]. This oversight has contributed to technology redundancy and abandonment rates [23]. Qualitative research that provides a more in-depth understanding of users' views and experiences of how eHealth and mHealth affects their lives [23,24] is of vital importance if we are to understand how people use or benefit from technology and what drives them to engage, or not, with these technologies.

With the fast accumulation of qualitative studies in practice disciplines that specifically reflect experiences and subjective perspectives there is a need to bring together evidence from these studies [25]. We therefore conducted a systematic review in order to collect and synthesize all qualitative evidence exploring the use of ICTs and/or mobile information and communication technologies (mICTs) by people with mood disorder. We sought to answer the following review questions:

1. Why do people with mood disorders use (m)ICTs?

2. What are (m)ICTs being used for by people with mood disorders?

3. What are the perceived benefits and challenges of using (m)ICTs by people with mood disorders?

4. In what ways are (m)ICTs being used for self-management by people with mood disorders?

5. What role, if any, do (m)ICTs play in terms of social relationships for people with mood disorders?

Methods

Rationale

A protocol for the review was published in PROSPERO (ID=CRD42014008841). The systematic review and metasynthesis drew on methods proposed by Sandelowski and Barroso [26], Thomas and Harden [27], and Barnett-Page and Thomas [28]. Qualitative research synthesis is an approach developed to make use of this proliferation of qualitative findings driven from the growth of empirical research and evidence-based practice in the 1990s [26].

Search Strategy

Due to potential difficulties in finding qualitative research [27], a sensitive systematic search strategy was created to maximize the likelihood of finding all relevant studies. The strategy consisted of two search strings combining thesaurus terms, free-text terms, and broad-based terms: one for ICTs/mICTs and one for qualitative methods (See Textbox 1 for an example of a search). Initially there were also terms for mood disorders, however, the pilot searches identified the inclusion of this string as being too specific limiting the aggregative capabilities of the search strategy. The systematic review would therefore categorize and catalogue all qualitative health research related to ICTs with mood disorder being the category focused upon for synthesis.

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Textbox 1. Example search of Cumulative Index to Nursing and Allied Health.

1. (MH "World Wide Web Applications+") (MH "Computers, Hand-Held") (MH "Macintosh Microcomputers") (MH "Multimedia") OR (MH "Social Media") (MH "Telemedicine+") OR (MH "Telepsychiatry") OR (MH "Telehealth+") (MH "Computers, Portable+") (MH "Computer Input Devices+")OR TI App OR TX Mobile phone*OR TX Mobile Internet OR TX Sony OR TX HTC OR TX Nokia OR TX Samsung OR TX Wireless OR TI 5G OR TI 4G OR TI 3G OR TX Touch screen OR TX Context-aware system* OR TX Cel* Phone* OR TX User-centered design OR TX Mobile app* OR TX Internet treatment OR TX Virtual realit* OR TX Internet delivered OR TX Mobile technolog* OR TX Electronic health OR TX Mobile health OR TX iPad* OR TI Apple OR TX mHealth OR TX eHealth OR TX Android OR TX Blackberry OR TX Windows mobile* OR TX Windows phone* OR TX Smartphone* OR TX iPhone* OR TI Mobile*

2. (MH "Phenomenological Research") OR (MH "Observational Methods+") OR (MH "Patient Attitudes") OR (MH "Ethnographic Research") OR (MH "Constant Comparative Method") OR (MH "Purposive Sample") OR (MH "Qualitative Studies+") OR (MH "Focus Groups") OR TX Theoretical sample OR TX Qualitative research OR TX Theoretical saturation OR TX Mixed methodolog*

3. 1 AND 2

4. Limit 3 to published 2007-2014

Searches were run in eight electronic databases: Medline, Embase, Cumulative Index to Nursing and Allied Health, the psychological literature database, Applied Social Sciences Index and Abstracts, British Nursing Index, Social Sciences Citation Index, and Cochrane Library. The results from each database were exported into Endnote X7 where duplicates were removed electronically and manually. The title and abstracts of the remaining articles were exported into a Microsoft Word document and numbered ready for screening.

Additionally, to optimize qualitative article retrieval the following methods were used: footnote searching; citation searching; journal run; area scanning; and author searching. In addition, experts and key authors were contacted to identify unpublished and ongoing studies. Due to research on the mobile aspect of ICTs being an emerging field, it was envisaged that grey literature might be a valuable source of primary data. Grey literature covers a wide range of material including: reports, government publications, fact sheets, newsletters, conference proceedings, policy documents, and protocols. We therefore searched the following sources for grey literature: The New York Academy of Medicine's Grey Literature report and Open Grey and Grey Source Index. The Journal of Medical Internet Research and Biomedcentral Psychiatry were hand searched from 2007 to present day.

Eligibility and Screening

One reviewer screened all of the titles and abstracts for inclusion in accordance with the following inclusion criteria: study used widely accepted qualitative methods to elicit in-depth experiences with findings appearing well supported by raw data (eg, participant quotes); study sample included people with mood disorders; study sample included the use of (m)ICTs; time period of 2007 to 2014 (2007 saw the release of the first 'smartphone', ie, Apple's iPhone); and English language.

To optimize the validity of the search a systematic sampling strategy was adopted, whereby 10% of results were coscreened (HF & SM/LM) to facilitate consistency of approach [29]. All questionable citations from the full search results were discussed in order to reach consensus on disposal. Full texts were retrieved for those publications that were deemed to meet inclusion criteria and those that could not be adequately assessed for inclusion with the information provided in the abstract. Two authors independently assessed the full texts for inclusion and then met to discuss their decisions. Where they could not come to a consensus, a third author was consulted.

Quality Appraisal

There is a lack of agreement about the approach to quality appraisal in qualitative research [26,30]. Therefore, due to the scarcity of data on the topic being studied, papers were not excluded based on quality, instead all papers were included and their quality appraised. A global assessment of study quality was undertaken assessing studies as being either strong or weak. Strong studies would likely include elements of respondent validation, triangulation of data, transparency, reflexivity, clear descriptions of methodology, methods of data collection, analysis, and an overall fit in regards to the research questions and the design of the project [31]. Reports were both individually and comparatively appraised. A typology designed by Sandelowski and Barroso [32] for classifying findings was used. Rather than comparing differences in quality between studies the typology was used to identify the level of data transformation.

Synthesis

The synthesis stage used thematic synthesis, an approach that combines elements of meta-ethnography and grounded theory providing the opportunity to synthesis methodologically heterogeneous studies [27,28]. The thematic synthesis followed a three-step process described in Textbox 2.

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Textbox 2. Thematic synthesis steps.

Step 1

Free sentence-by-sentence coding: the verbatim findings of each selected study were entered into NVivo 10. Codes were developed initially free from hierarchical structure but as the translation of concepts developed from one study to another new codes were either added to existing ones or new codes created.

Step2

Organization of free codes in hierarchical order under a range of descriptive themes: free codes were organized into related areas to create descriptive themes; then similarities and differences between codes were studied, facilitating the organization of the codes into related groups and the formation of a hierarchical tree structure of descriptive themes.

Step 3

Development of analytical themes: descriptive themes were analyzed and then organized into more abstract analytical themes, producing a synthesis that went beyond the data in the original studies and addressed the research questions.

In order to keep the synthesis as close to the data as possible the research questions were initially set to one side facilitating an inductive process. Codes were applied as part of an iterative process with constant comparison with other codes (Step 1). This process was repeated for all the codes until higher order categories were constructed and all codes accounted for (Step 2). The review questions were then brought to the fore and used as a framework to guide the analytical process, which focused and transformed the descriptive themes into the final synthesis (Step 3). The categorization process was examined by the reviewing team where, through discussion, changes, and adaptions were made where necessary until consensus was reached and no further changes were required. The reviewing team scrutinized the synthesis at an analytical level through a cyclical process until a final synthesis was achieved.

Results

Search findings

The search identified 12,926 titles; 67 publications were retrieved in full (Figure 1). The methodological designs of the studies were qualitative or mixed-methods using focus groups, interviews, or forum/message boards as the methods for generating data. Studies originated mainly from Europe, the United States, or Australia and New Zealand.

Only one paper was identified from the systematic review of qualitative papers and therefore, synthesis of mICTs and mood disorders was not possible due to lack of data. However, the review mapped and categorized all qualitative papers in the domain of health and ICT research. This facilitated

methodological development in order to find a solution regarding how to use imperfect data. Rather than lose the potentially valuable qualitative data of relevance to the project, the 67 full-text papers were rescreened. The aggregative and sensitive systematic search strategy offered a flexible approach toward the data. This provided the researchers with the ability to use the existing data to explore how people with mood disorders used ICTs 'of relevance' to mobile technology. This would include, but not be limited to, ICTs such as websites, online therapy, online support groups, forums, blogs, and so on, essentially, ICTs that could be accessed from mICTs but were not necessarily made explicit within the text. Thirty-four studies were included in the synthesis after the full-text articles had been rescreened; a summary of their results can be found in Multimedia Appendix 1.

The results of the appraisal process are shown in Table 1 with 22 studies identified as being strong and 12 weak, with most having a typology of findings either at the topical or thematic survey levels of data transformation. Therefore, with over a third of the studies being weak in quality, the appraised strength of the studies weighed upon, in a measured manner, our interpretation of the study findings.

The synthesis created three analytical themes and a number of respective analytical subthemes to describe people's use of ICTs. This is presented as a typology of findings (Textbox 3).

The research questions were then used as a template, explicating the typology of findings to understand how the descriptive themes interrelated with their analytical themes, thus helping to answer the questions asked of the data. The results are presented below.

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Table 1. Appraisal of qualitative papers in metasynthesis.

Global assessment of study quality	n (%)
Weak	12 (35)
Strong	22 (65)
Typology of findings	
No findings	4 (12)
Topical survey	11 (32)
Thematic survey	14 (41)
Conceptual thematic description	5 (15)
Interpretive explanation	0 (0)
Total	34 (100)

Textbox 3. Typology of findings.

Movement and change

- Change processes
- Engagement
- Motivational aspects of use
- Recovery
- Taking action
- Values

Providing a source of community

- Communication
- Intrapersonal effects
- Safe places
- Sharing
- Social aspects

The person and technology

- Acceptance of technology
- Design features
- Functionality
- Personal time
- Safety
- Technical mastery
- Technical issues
- Usability

Figure 1. PRISMA diagram of screened articles of relevance to mood disorders and mICT .
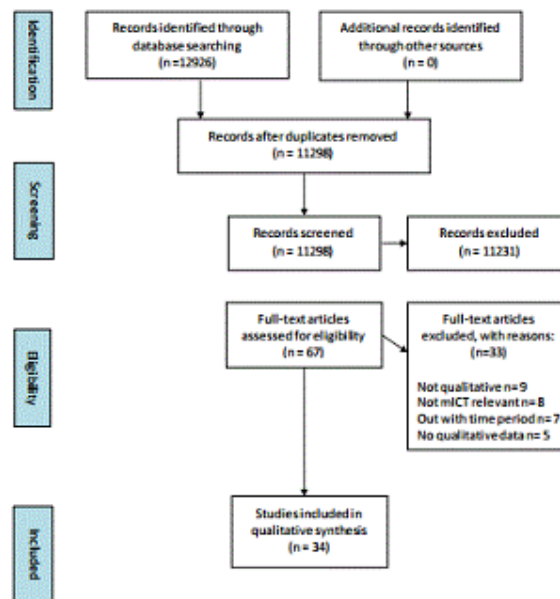
Why do People With Mood Disorders use (Mobile) Information and Communication Technologies?

Considerable overlap was found in terms of why people used ICTs and the perceived benefits this technology gave them. Two studies [33,34] provided data regarding motivation to use ICTs. For those involved in Internet-based treatment, the interactive nature of ICTs appeared to increase their motivation to engage with treatment and, in so doing, possibly help in their recovery [34].

Three studies showed how users of ICTs liked the option of being able to choose where to use technology (ie, at work or in the convenience of their own homes) [35-37]. Having easy access to information from around the world, at any time in the day, through use of the Internet was regarded as useful in comparison to using books [37,38].

The use of websites to support relatives of people with depression appeared to decrease feelings of stigma in both by enabling people to draw strength from talking more openly about their situation [37]. Young people were concerned about feelings of embarrassment if other people realized they had depression increasing a sense of helplessness [38-40]. Fear of being judged by others due to having a mental health issue was a particular problem faced by some young users of ICTs and it became a specific reason for using the technology [39,41]. Fear of school peers finding out and potential links to bullying opted users to engage with ICTs in the privacy of their own homes

[41]. People who felt shame due to experiencing emotional problems would put a lot of effort into hiding their symptoms so having a website where people could discuss their emotional problems anonymously was considered a good thing and often would be the first time sharing their experiences [40]. The use of websites to support relatives of people with depression appeared to decrease feelings of stigma and support their mental health [41]. Using Web-based assessment tools appeared to facilitate dialogue between patients and clinicians. For instance, patients felt it was easier to talk to their general practitioner as they had thought about things beforehand and would be more confident in receiving a diagnosis [36]. Of significant importance to using ICTs was the concept of privacy [37,42-44]. Web-based programs were considered, by some, as providing the most private way to seek help for psychological issues [35].

ICTs appeared to provide people with options regarding how they used technology with choice over temporal, location, treatment, privacy, and disclosure aspects of their care needs [33,38,39,41,45]. The credibility of ICTs appeared an important factor when deciding upon usage [35]. For example, having testimonials from other users displayed on Web pages regarding credibility, and knowledge that the ICT was designed on research appeared to raise confidence in technology [35,46]. ICTs were also regarded as cost-effective solutions to access-to-care problems faced by people living in remote localities, by both patients and health professionals [47]. Participants reported being aware of long waiting times for

specialist health services and, with the alternative being expensive private treatment, the low cost nature of ICTs made them attractive [34,37,42]. Modifying aspects of ICTs with a user-centered design appeared to facilitate use to some extent by reducing technical challenges and helped people feel more competent and autonomous [48,49].

What are (Mobile) Information and Communication Technologies Being Used for by People With Mood Disorders?

The use and view of ICTs as a resource appeared to be an important factor in people's lives. ICTs could open up access to information, support, and treatment in a highly accessible, interactive, and instant way [37,38,42,50,51]. The Internet was also considered empowering [45] and provided a resource for learning [46,48,52]. Holding certain values appeared to suggest people were going to commit to using and completing therapeutic work via ICTs more than others, for example, having a sense of what one should, or should not do, appeared to influence some people's commitment to complete Web-based programs regardless of how tedious or frustrating they were [53]. ICTs appeared to be used as a resource for people to communicate and exchange information and stories with others [38,43,45]. They appeared to facilitate disclosure of personal information regarding people's mental health [40], indicating a need by people to talk about their issues [34].

What are the Perceived Benefits and Challenges of Using (Mobile) Information and Communication Technologies by People With Mood Disorders?

There was significant overlap in terms of why people use ICTs and the benefits provided. As these benefits have already been identified and discussed in the previous two sections, this section focuses on the challenges of using technology. Certain forms of technology and their functionalities produced usage difficulties [42]. That is, people were put off using ICTs if software was slow, had broken hyperlinks, was unnecessarily complex or impersonal, and if use required additional software [47,50,54]. For some people, there were concerns regarding the safety of using ICTs for treatment purposes due to queries regarding the levels of confidentiality the technology could provide [47,52,55]. Being able to use ICTs anonymously appeared to be an important aspect in managing confidentiality and a factor when assessing the appropriateness of using a Web-based intervention [37,40,43]. Indeed, there were people who preferred not to share personal information unless it was face-to-face due to the importance they placed on confidentiality [38].

Some people made a conscious decision not to use ICTs. Reasons included having no interest in certain forms of technology, not being technologically savvy, and being too unwell to use technology (for example, reduced energy and motivation due to an acute depressive phase) [38,41,56]. There were also practical reasons for not using ICTs, such as, having no need to use it, not identifying with content, inhibitive cost, or having no Internet connection [42,48]. Users needed to believe and trust in the ICTs they were using [48,52]. There were concerns regarding information reliability and quality on the Internet, and doubts as to whether people had the ability to discriminate trustworthy information themselves [45]. Of note, was the generally limited mention of negative outcomes in the reviewed studies.

In What Ways are (Mobile) Information and Communication Technologies Being Used for Self-Management Purposes by People With Mood Disorders?

The use of ICTs appeared to support people to acquire relevant knowledge in regards to their mood problems providing a sense of recognition in situations that might be difficult to accept or unfamiliar, thus helping them feel supported [34]. ICTs were used, by some, to acquire information about treatment, diseases, drug information, and the experiences of others [44,45]. Some people read information specifically targeted toward health professionals as they deemed it to be the most comprehensive and up-to-date sources of information [45]. Seeing relevance in material appeared to be a factor in the process of acquiring new self-knowledge. This was achieved through learning together by reflecting and restructuring new knowledge to suit one's own needs [34]. ICTs appeared to be being used for help-seeking through the acquirement of self-help information, the development of skills, and also as a means to seek help through online support groups and forums [38,40,45,57,58]. Sitting down at a computer at regular times working on a self-help programs appeared to be of benefit; people reported experiencing an empowering effect, a change of perspective, increased personal agency, and a way of keeping new learning at the forefront of their minds [46]. A programs to help monitor depression (on a mobile phone) appeared to hold potential as a motivational tool to support people to look after themselves [42]. Self-help books were viewed as having a number of disadvantages such as being hard to read, noninteractive, and difficult to engage with; where available, people preferred Web-based versions [50,59]. ICTs appeared to provide people with informational support and the ability to delve as deeply as they wished into certain topics, such as medication management, counselling services, negative thinking, and poor concentration [40,52]. The Internet appeared to be considered a key component in providing greater access to health information by patients and receiving benefits from engaging in self-help [34,40,45,46,52].

ICTs appeared to help provide a sense of control in people's lives by providing them with the opportunity to find information about where to find help, assisted them with understanding when to seek help, and what support was available to them [38,52]. They helped prepare for meetings with health professionals, thus making treatment more collaborative [45]. Support from online forums was flexible and inexpensive [60]. Maintaining contact with friends and family was also feasible through diverse Web-based platforms [39].

Receiving support through ICTs appeared to be of benefit by people with mood disorders [49]. People required support in maintaining relationships and dealing with broken relationships while recovering from a mood disorder [50]. Methods of support, in preference to telephone calls or home visits by professionals, included the use of emails due to their unintrusive

nature [49,50]. People also appeared to benefit from support from friends, family members, and significant others to encourage and help them persist with using ICTs for their recovery [48]. Web-based programs potentially offered a means to lessen stigma toward mental health and encourage acceptance of conditions such as Bipolar Disorder [35,37,52,61]. Web-based programs supported people to feel validated and empowered increasing feelings of confidence and self-worth [36,46,57].

Learning time management techniques facilitated people to organize their time better helping them meet deadlines and prepare for exams [35,48]. Time was required to be set aside to use ICTs and having personal time in a private space was appreciated [37]. People taking responsibility for their treatment, had a sense of determination, curiosity, and attributed success to their own endeavors appeared to benefit more from treatment delivered through ICTs [53,62]. People were able to use ICTs to contact health professionals and source health information for themselves, which appeared to help them manage their own problems moving from a position of passivity to one of activity [34,38,53,62]. Being aware of one's motivational levels and having responsibility for maintaining motivation to use interventions delivered through ICTs appeared helpful [33]. Holding certain values would help people to complete Web-based programs and others found their own way of working with material to face and overcome challenges and seeing difficulties as potentially valuable lessons to be learned [53,62].

People's awareness sometimes appeared to change when using ICTs. For instance, becoming aware of holding high expectations toward technology and feeling disappointment if programs did not meet all their needs fostered a sense of consideration to revisit and work with material to see if it would be of benefit [62,63]. Web-based programs held the potential to help people become more aware of their negative thinking habits, promoting reflection, and challenging of thoughts moving people in a more positive direction toward self-acceptance [34,37,50,64]. Participant feedback in the design process of ICTs potentially influenced the goals of particular programs centering on raising awareness regarding the importance of managing depressive symptoms among their users [65]. The use of ICTs to access information and seek other people's opinions through online forums for example offered different viewpoints and helped people understand more about the difficulties they faced [37].

What Role, if any, do (Mobile) Information and Communication Technologies Play in Terms of Social Relationships for People With Mood Disorders?

Using ICTs for social support appeared to be of benefit to people and one of the predominant reasons for using the technology on a daily basis [42]. Meeting similar people in virtual environments created a sense of acknowledgement and recognition decreasing feelings of social isolation, loneliness, and alienation [37,48,52]. People could use ICTs as an opportunity for sharing their feelings, emotions, and personal stories [40]. The exchange of experiences and knowledge in a supportive environment appeared to help people; narrate their experiences, gain a sense of community, share tips, and provide a sense of comfort, strength, and hope in people [37,42-45].

Using ICTs made some users less inhibited, in terms of the personal information they shared, because they felt more secure about privacy being maintained and, therefore, found ICTs less discomforting than face-to-face interactions [37,38,40].

ICTs provided people with the capacity to use online social networks in order to communicate with people experiencing similar issues, to ask advice or discuss certain topics in a convenient and accessible manner [37,38,42]. ICTs also provided people with the opportunity to receive and give peer support [37,44,50,66]. Peer support appeared to help people engage with Web-based interventions, overcome procrastination and motivational issues, and helped them to understand their own problems in a way that gave potential for behavior change [44,50].

Discussion

Principal Findings

The aim of the study was to conduct a metasynthesis of all qualitative studies exploring the use of ICTs by people with mood disorder. The resultant metasynthesis created an analytical typology of findings and a descriptively themed framework, which conceptualized how people with mood disorder use and relate to their ICTs, and in so doing, answered the specific review questions. The metasynthesis identified that people with mood disorders use ICTs in similar ways and face similar technological paradoxes as other users [67]. However, the metasynthesis developed the understanding further, suggesting a continuum of use, in this instance, by people with mood disorder. How ICTs of relevance to mobile technology are used and harnessed by this particular client group are discussed below.

Our metasynthesis identified the factors influencing why people with mood disorders chose to use ICTs such as affordability, accessibility, and versatility. These factors align closely with previous studies on the delivery of health-related products evidenced through increasing Web-based self-help resources [4], effective delivery of psychological interventions [68], and their ability to reach rural areas within diverse populations and settings [6]. The body of eHealth research is expanding with studies across different patient groups, using different technologies/interventions, and focusing on different outcomes [69-73]. In their interpretive review of the literature on consumer eHealth, Hordern et al [74] identified five broad usage themes: (1) peer-to-peer online support groups and health-related virtual communities, (2) self-management/self-monitoring applications, (3) decision aids, (4) the personal health record, and (5) Internet use. The results of our metasynthesis reflected these uses but also highlight a number of intrinsic factors affecting people's use of ICTs. People were motivated to use ICTs to aid recovery, associated with the convenience afforded to them through using the technology. The privacy and choice of communication methods of ICTs were seen as facilitative and credible options often wrapped-up in cost-effective and user-center designed products. Seen as a resource, ICT use was empowering, facilitating people to self-care or self-manage. The Internet was considered a key component in providing greater access to health information by patients and for them to receive benefits from

engaging in self-help [34,40,45,46,52]. ICTs helped provide a sense of control in people's lives by providing them with the opportunity to access information to help themselves, bettered their understanding about when to seek help, and increased awareness of what help was available [38,52]. They facilitated people to prepare for meetings with their health professionals making treatment more collaborative. Receiving support through ICTs was seen to be of benefit by people with mood disorders [49]. ICTs potentially facilitated people to take the first step in managing their recovery after years of deliberation [34]. ICTs supported people to stay in contact with health professionals involved in their care and establish therapeutic relationships despite being separated by distance [38,47,49]. People were able to use ICTs to contact health professionals and source health information for themselves in order to manage their problems by converting intentions into actions [34,38,53,62].

People who took responsibility for their treatment, had a sense of determination, curiosity, and attributed success to their own endeavors appeared to benefit more from treatment delivered through ICTs [53,62]. ICTs that were stimulating to use and interacted well with peoples' senses and cognitive abilities enhanced engagement [46]; this was deemed vital in the context of online depression therapy [34]. With engagement came an enhanced sense of personal agency from interacting with ICTs and the completion of Web-based activities offered a sense of empowerment [37,46]. The functionality of ICTs was an important factor in their adoption and use [42]. For example, having functions to compare information from day-to-day to week-to-week, track information, format content, use Web-based diaries, forums, bookmarks, blogs, messages, control privacy settings, invitation functions, e-reminders, and options to reply directly to clinicians were important usage features [37,42-44,49,50]. ICTs with increased usability were desirable [38,42]. For example, having a user-interface that could be personally controlled, with an array of images, colors, information, and music options, could help engage the user [46]. In addition, being able to use ICTs in different locations (such as, work, home, or on public transport) appeared important factors when assessing usability by the user [37,42].

When designing ICTs and Web-based interventions importance was placed upon managing depressive symptoms in order to support people, through evidence-based interventions, with their practical and interpersonal issues caused by their conditions. [50,65]. Web-based programs supported users to work on solving problems through taking a structured approach using manageable steps [46,57]. If people focused on achieving manageable goals then it provided them with a sense of completion [50,53]. Web-based programs supported people to cognitively restructure, facilitating them to rethink stressful situations that challenged their negative thought patterns. Web-based programs also facilitated behavioral changes by breaking negative cycles of inactivity, self-incrimination, and withdrawal, which lead to secondary benefits as people become closer to those around them [34,35]. Peer support accessed through ICTs helped people to feel more positive and understand themselves better leading to behavior change and the confidence to negotiate changes in treatment [44]. Accessing Web-based medication information through ICT use prompted some people

to request additional drug information from their prescriber regarding risks and benefits of antidepressants and conversely, made others change the dose of drug or discontinue the prescription without seeking professional guidance first [45]. Having a sense of curiosity toward ICTs and a will to learn self-management techniques and, if an improvement in their health was noticed through using ICTs, then they were more likely to persist with an intervention [48,53]. ICTs supported people to stay in contact with health professionals involved in their care and to establish therapeutic relationships despite being separated by distance [38,47,49]. However, ICTs can be viewed to have paradoxical elements to them; social and economic paradoxes, which challenged people in their social and individual lives [67].

The findings of our metasynthesis indicate that usage difficulties were a key factor in reducing people's motivation to use ICTs. This aligns well with the findings of others, including Bessel et al [75] who identified that computer-based interventions have limitations, such as the reliance on users having access to computers at scheduled times and restricted and unreliable Internet access in remote and rural areas. Safety was a key concern raised from the synthesis with the concept of confidentiality and data security being paramount. This is clearly associated with the disadvantages of ICTs such as software errors, unreliable information, problems with privacy and unreliability, lack of regulation, social isolation, and in some forms of technology, the loss of vocal intonation and nonverbal communication [75]. Internet-delivered treatment programs such as open access websites are characterized by poor adherence with an average dropout rate of 31% [76,77].

There are many advantages for patients when using ICTs, such as being able to get in contact with health professionals quickly and easily, a reduction in travel and waiting times for face-to-face appointments, convenience, and affordability. The technology provides a medium for communication between health professionals and patients where information about the patients' disease, treatment, and therapeutic interventions can be discussed [7]. This is of particular importance for those with long-term conditions and our metasynthesis reinforces this point. In contrast to other forms of patient contact, ICTs provide the opportunity for asynchronous communication. eHealth holds the potential to enable patients to better manage their long-term health conditions through the use of technology [7].

Our metasynthesis identified that people used ICTs to acquire relevant knowledge in regards to their mental health issues. This can be linked to an increasing trend in society to adopt self-service models of interaction. There have been promising results for using computers to deliver self-management programs to patients with long-term conditions in health-supported settings showing potential for changing health behavior and improving clinical outcomes [78]. Since 2005, interest in the Internet as a vehicle to disseminate interventions designed to treat and prevent mental disorders, including those targeted at depression, has been increasing [11]. Passive psychoeducational information might be an effective intervention for depression when employed with reminders and involving minimal information [11]. In their systematic review, Griffiths et al [11] identified that the Internet was highly effective and facilitative when used to deliver mental

health interventions with or without practitioner guidance. Web-based CBT has also been shown to provide small benefits when used to help manage chronic pain [79]. However, in a recent meta-analysis of computerized cognitive behavioral therapy (cCBT) by So et al [9] only short-term reductions in symptoms were noted, long-term follow-up and functional improvement were not significant and there was a recommendation that the clinical usefulness of cCBT should be reconsidered downward in terms of methodological validity and practical implementation [9]. Therefore, further research is required to help understand peoples' self-service approach to accessing Web-based health information and their acceptability and use of Web-based therapeutic interventions [80].

Outcome data from RCTs and meta-analyses have identified the cost-effectiveness and clinical efficacy of mental health programs delivered via ICTs with comparable effect sizes to face-to-face treatment [14,81]. Web-based interventions have also highlighted positive effects on patient empowerment and self-efficacy including people with physical health conditions such as cancer [82,83]. Our metasynthesis suggests similar outcomes for people with mood disorder and that ICTs can provide opportunities for help seeking and support for such people. Yet, evidence points to the variable quality of information and apps available on the Internet [7,84-87]. There appear to be numerous health-related websites with limited availability of help, containing information that can be difficult to read and incomplete [85,86].

Our metasynthesis identified that people with mood disorder were using ICTs to give and receive social support. This corresponds with evidence from SNS use and associated indices of psychological well-being relating to a persons' sense of self-worth, self-esteem, satisfaction with life, and other psychological development measures [88]. The metasynthesis identified that people with mood disorder where using social networks in a similar way as suggested by Cohen [89] by providing platforms to give and receive social support in the form of informational support, instrumental support, and emotional support. The metasynthesis highlighted how ICTs facilitate people with mood disorder to communicate with others, corresponding to previous work undertaken regarding Web-based disinhibition. Suler [90] suggests that a number of factors can loosen psychological barriers allowing for inhibition to become reduced when on the Internet: invisibility, dissociative anonymity, synchronicity, dissociative imagination, solipsistic introjections, and minimizing authority. People use social networking sites (SNSs) for their sociability function to maintain relationships with on and offline friends over varying distances [91] attending to extended social networks and relationships [92,93]. Before the development of popular Web-based SNSs such as Facebook, Skinner and Zack [94] had already identified that barriers to communication were being overcome through using the Internet and as a result people were getting help in ways convenient to them.

Of particular importance was the lack of qualitative research being undertaken in this field as evidenced by only one paper retrieved specifically reporting on mICTs. To date, patients or end uses have not been sufficiently included in the design of software applications. The same applies to the selection of

relevant and appropriate outcome measures in effectiveness studies such as RCTs. These omissions have contributed to redundancy and the abandonment of technology. n fact, there has been a presumption that those designing technology and undertaking research already know what the user wants in terms of software and hardware. Designers have, jumped ahead, and designed apps and websites, without first talking to end users about how they use and fit technology into both their existing lives and what would help them manage their lives. Qualitative research, which provides a more in-depth understanding of users' views and experiences is of vital importance if we are to understand how people use or benefit from technology and what drives them to engage, or not, with these technologies.

Recommendations

Research: research relating to how people with mood disorder used ICTs and in particular, their use of mICTs, not as participants in research studies, but as ubiquitous technology in their everyday lives. Qualitative research is required to help understand how mICTs fit into people's lives both in general but also more specifically in relation to their mood disorders.

Practice: clinical practice could be supported through understanding how people with mood disorder use mICTs to look after themselves providing clinicians with valuable information to help harness peoples' mICTs for use in their recovery and inform the future design of technology.

Strengths and Limitations

The review relied exclusively upon English language publications, which may not adequately reflect the user experiences and perceptions that were gathered in non-English speaking contexts. Another issue may relate to the quality of primary data sources and the quality of existing quality appraisal tools for metasyntheses. The researcher's stance was clearly set out in the study providing rationales for the choice of methodology and methods used. Transparency was achieved by clearly detailing the synthesis process and checks and balances were used to ensure rigor throughout. The study originally set out to synthesis all qualitative articles regarding people with mood disorder and mICT. Unfortunately, as only one article met the original inclusion criteria for mobile technology a synthesis of this material was not possible. However, our novel approach toward the search and retrieval of data allowed us to catalogue all qualitative data related to health and ICTs including data of relevance to mICTs. This process provided us with the opportunity to restructure our inclusion criteria and make use of the data that would have otherwise been neglected in other systematic reviews and metasyntheses.

Conclusion

The metasynthesis of people with mood disorders and their use of ICTs has provided a tentative understanding into their uses, challenges, and gratifications spanning the intrapersonal, interpersonal, and through into wider society. The typology of findings and analytical framework highlights the connections and interrelationships between analytical themes and subcategories; the intrinsic and extrinsic nature of use and the

embedded characteristics of the technology. Our metasynthesis has identified that people can use ICTs in novel ways to help them manage their lives and health. People use ICTs to support motivation, for their convenience, to help decrease feelings of stigma, their facilitative capabilities, enhance privacy, credibility, and cost effectiveness. ICTs support people to access the Internet to get what they need in a way that fits into their lives. ICTs are a resource for communication and promote user engagement. However, they are not without issue, with particular challenges of trust and confidentially requiring to be negotiated. That being said, when the challenges are navigated successfully, people are able access opportunities to manage their mood disorder by acquiring relevant knowledge, engage in help-seeking behavior, receive support, gain a sense of control, learn time management techniques, take responsibility, and increase their awareness. ICTs also allow access to Web-based social networks where sharing with others can facilitate social support. Our typology of findings creates an empirical basis to help guide and harness the potential of (m)ICTs to support self-management, facilitate collaborative, person-centered care, and support the person actively recover from their mood disorder. Importantly, our metasynthesis has highlighted a gap in the evidence base, as no research has focused specifically on mICT use by people with mood disorder.

Authors' Contributions

H. Fulford undertook the metasynthesis and manuscript preparation with principal supervision from S. MacGillivray and additional supervision from L. McSwiggan and T. Kroll.

Conflicts of Interest

None declared.

Multimedia Appendix 1

Summary of results

[PDF File (Adobe PDF File), 65KB - mental_v3i3e30_app1.pdf]

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Abbreviations

cCBT: computerized cognitive behavioral therapy
BD: bipolar disorder
GP: general practitioner
mICTs: mobile information and communication technologies
ICTs: information and communication technologies
RCT: randomized control trials
SNS: social networking site

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Appendix 5: Empirical study documentation

East of Scotland Research Ethics Service (EoSRES)

TAyside medical Science Centre
Residency Block Level 3
George Pirie Way
Ninewells Hospital and Medical School
Dundee DD1 9SY

Dr Steve MacGillivray
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ

Date:	12th March 2015
Your Ref:	
Our Ref:	LR/15/ES/0022
Enquiries to:	Mrs Lorraine Reilly
Direct Line:	01382 383878
Email:	eosres.tayside@nhs.net

Dear Dr MacGillivray

Study Title:	**Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.**
REC reference:	**15/ES/0022**
Protocol number:	**2014MH16**
IRAS project ID:	**167516**

Thank you for your letter of 11th March 2015, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information,
 please contact the REC Manager, Mrs Lorraine Reilly, eosres.tayside@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

1

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.
There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from NRES. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Covering letter on headed paper [Covering letter]	1.0	03 February 2015
Covering letter on headed paper [Covering letter]	2.0	11 March 2015
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Evidence of Sponsor insurance]	1.0	28 January 2015
GP/consultant information sheets or letters [Psychiatrist letter]	1.0	28 January 2015
Interview schedules or topic guides for participants [Interview topic guide_Patient]	1.0	28 January 2015
Interview schedules or topic guides for participants [Interview topic guide_Clinician]	1.0	28 January 2015
IRAS Checklist XML [Checklist_11032015]		11 March 2015
Letter from funder [Letter from funder]	1.0	28 January 2015
Letter from sponsor [Letter from sponsor]	1.0	28 January 2015
Letters of invitation to participant [Letter of invitation]	1.0	29 January 2015
Non-validated questionnaire [Demographic questionnaire_Patient]	2.0	11 March 2015
Participant consent form [Participant consent form_Clinician]	2.0	11 March 2015
Participant consent form [Patient]	2.0	11 March 2015
Participant information sheet (PIS) [PIS_Patient]	2.0	11 March 2015
Participant information sheet (PIS) [Participant information sheet_Clinician]	2.0	11 March 2015
REC Application Form [REC_Form_05022015]		05 February 2015
Research protocol or project proposal [Research Protocol]	2.0	11 March 2015
Summary CV for Chief Investigator (CI) [Chief Investigator CV]	1.0	28 January 2015
Summary CV for student [Student CV]	1.0	28 January 2015
Summary CV for supervisor (student research) [Supervisor CV]	1.0	28 January 2015

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

<u>Reporting requirements</u>

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

15/ES/0022	Please quote this number on all correspondence

Yours sincerely

L. Reilly

pp
Dr Carol Macmillan
Chair

Email: eosres.tayside@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: TASC
NHS Tayside R&D office
Professor Kroll
Mr Fulford

NHS
SCOTLAND

East of Scotland Research Ethics Service (EoSRES)   Research Ethics Service

Amended 11/6/2015

TAyside medical Science Centre
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Dr Steve MacGillivray
School of Nursing and Midwifery
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Date: 11 June 2015
Your Ref:
Our Ref: AG/15/ES/0022
Enquiries to: Arlene Grubb
Direct Line: 01382 383848
Email: eosres.tayside@nhs.net

Dear Dr MacGillivray

Study title:	**Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.**
REC reference:	**15/ES/0022**
Protocol number:	**2014MH16**
Amendment number:	**AM01(REC Reference only)**
Amendment date:	**11 June 2015**
IRAS project ID:	**167516**

Thank you for your letter of 11 June 2015, notifying the Committee of the above amendment.

The Committee does not consider this to be a "substantial amendment" as defined in the Standard Operating Procedures for Research Ethics Committees. The amendment does not therefore require an ethical opinion from the Committee and may be implemented immediately, provided that it does not affect the approval for the research given by the R&D office for the relevant NHS care organisation.

Documents received

The documents received were as follows:

Document	Version	Date
Letters of invitation to participant	2.0	11 June 2015
Notice of Minor Amendment	AM01	11 June 2015
Other [Email from Sponsor]		05 June 2015
Research protocol or project proposal	3.0	11 June 2015

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Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

15/ES/0022:	Please quote this number on all correspondence

Yours sincerely

Arlene Grubb

Arlene Grubb
PA to Scientific officer/Assistant Co-ordinator
Eosres.tayside@nhs.net

TASC
TAyside medical Science Centre

VN/LC
Thursday, 29 January 2015

Dr Steve MacGillivray
School of Nursing and Midwifery
11 Airlie Place
Dundee
DD1 4HJ

Dear Dr MacGillivray

Sponsorship Letter

Sponsor R&D Reference Number: 2014MH16
Study Title: Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study

Under the requirements of the Scottish Executive Health Department Research Governance Framework for Health and Community Care, the University of Dundee and NHS Tayside as Co-Sponsors agree to act as Sponsor for this study. Sponsorship is subject to you obtaining a favourable ethical opinion and NHS Tayside R&D management approval.

As Chief Investigator, you must ensure that study does not commence locally until all applicable approvals have been obtained. If this study is or becomes multi-site, you are responsible for ensuring that activity at external sites does not commence until local approvals have been obtained. Please liaise with TASC Legal team to arrange any necessary Site Agreements.

Enclosed are two copies of the Co-Sponsorship Agreement incorporating a Chief Investigator Declaration. You should read the agreement in its entirety to familiarise yourself with the terms, complete the remaining details, sign both agreements on page four, and return **both signed agreements** to the TASC Research Governance Manager. A fully executed copy of the agreement will be forwarded to you in due course.

Following receipt of all relevant approvals, you should ensure that any subsequent amendments are notified and approved by the Sponsor, REC and relevant NHS R&D Office(s), prior to implementation, and that an annual progress report is submitted to the Sponsor, REC and NHS Tayside R&D.

Please ensure yourself and your study staff are familiar with the TASC Standard Operating Procedures and guidelines (available at http://www.tasc-research.org.uk/research/for-researchers/sops). We recommend that study staff receive Good Clinical Practice training before the study commences.

Finally please contact Dr. Feruza Vera Nuritova (f.nuritova@dundee.ac.uk) should you have any queries.

Dr. Vera Nuritova
Research Governance Manager

**Signed for and on behalf of
the University of Dundee**

Mrs. Liz Coote
Non-commercial R&D Manager

**Signed for and on behalf of
NHS Tayside**

v.1.0 270115 NCTIMP Co-Sponsorship Letter VN/LC

ZURICH
MUNICIPAL

To Whom It May Concern

Our ref: AB/IND   17 June, 2014

Zurich Municipal Customer: University of Dundee

This is to confirm that University of Dundee have in force with this
Company until the policy expiry on 31 July 2015 Insurance
incorporating the following essential features:

Policy Number: NHE-14CB07-0013

Limit of Indemnity:
Public Liability: £ 25,000,000   any one event
Products Liability: £ 25,000,000   for all claims in the
Pollution: aggregate during
                                                any one period of
                                                insurance
Employers' Liability: £ 35,000,000   any one event
                                                inclusive of costs

Excess:

Public Liability/Products Liability/Pollution: Nil any one event
Employers' Liability: Nil any one claim

Indemnity to Principals:
Covers include a standard Indemnity to Principals Clause in respect of
contractual obligations.

Full Policy:
The policy documents should be referred to for details of full cover.

Yours faithfully

Underwriting Services
Zurich Municipal
Farnborough

NHS
Tayside

12 October 2015

Mr Hamish Fulford
Postgraduate Student
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
UK
DD1 4HJ

Dear Mr Fulford,

ACCEPTANCE OF AMENDMENT LETTER

Title: Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.

Chief Investigator: Dr Stephen A MacGillivray

Principal Investigator/Local Collaborator: Mr Hamish Fulford

Tayside Ref: 2014MH16

REC Ref: 15/ES/0022

Amendment Number: AM02 (For REC Reference Only)   Amendment Date: 11 March 2015

Thank you for submitting the above amendment for review by the R&D Office here in NHS Tayside.

Following my assessment of the proposed changes I am pleased to confirm that NHS Tayside has no objection to these being implemented locally.

Approved Documents

Document	Version	Date
Interview schedules or topic guides for participants [Patient]	2.0	01 October 2015
Notice of Minor Amendment	AM02	11 March 2015
Other [Confirmation from Sponsor]		07 October 2015

I thank you for keeping the R&D Office informed of the study progress.

Version 2.0 dated 06/01/15
Non-NRS Study Amendment Approval (Ethical-Regulatory Approvals in Place)

- 1 -

Yours Sincerely

Elizabeth Coote
Head of Non-Commercial Research Services

TAyside medical Science Centre (TASC)
Ninewells Hospital & Medical School
TASC Research & Development Office
Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY
Email: liz.coote@nhs.net
Tel: 01382 383876   Fax: 013812 740122

c.c.   Dr Stephen A MacGillivray
         Nikki Gribben

PARTICIPANT INFORMATION SHEET - PATIENT

STUDY TITLE

Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.

INVITATION

We are inviting you to take part in a research study, which aims to explore the views and experiences of using mobile information and communication technology (mICT) by people who have depression. Importantly, before you decide to take part we would like to explain why the study is being conducted and what it would involve if you agree to take part. Please take the time to read the information sheet carefully, and if you think it might be helpful, discuss it with others such as your friends, family and health professional. We aim to be as clear as possible when explaining the study to you and would be happy to provide any answers to queries or provide further information at any stage. This project is a part of Hamish Fluor's degree research study. He is a PhD student at the School of Nursing and Midwifery, University of Dundee.

What is the purpose of the study?

The purpose of the study is to explore the views and experiences of using mobile information and communication technology (mICT) by people who have depression. MICTs are devices like mobile phones, laptop computers and tablet-PCs. We are interested in understanding how people with depression have incorporated these technologies into their lives, how they use them and what they use them for. We are also interested in how these technologies are being used to help manage depression. Results from this study will help the development of future technology and develop guidance for both patients and health professionals in considering how and why mICTs can best be used to help manage depression.

Why have I been chosen?

A health professional who has been working with you [Insert Health care professional's name] thought you might be a suitable candidate to approach because you have been having problems with your mood and the health care professional you have been working with thought you may have interesting and useful experiences and views about the use of mobile technologies. Therefore, your unique views and experiences are likely to help towards understanding why and how people with depression use mICTs and that is why I contacted you. We hope to recruit about 40 people to participate.

Do I have to take part in this study?

Taking part in this study is entirely voluntary, you are free to refuse to take part or withdraw from the study at any time without having to give a reason and without this affecting your care and treatment. If you choose to withdraw from the study any information provided up until that point would be included in the study without revealing any personal information.

What will happen to me if I take part?

If you agree to take part you will meet with Hamish Fulford for an interview at a jointly agreed location. This could be in your home or your local health centre for example. The interview would take approximately one hour. At the start of the interview Hamish will seek informed consent from you and ask you to sign a form if you agree. He would also ask you to complete a demographic form, which seeks to understand participants as a group of people and is not used to identify individuals.

What will my responsibilities as the participant be?

You will be asked to give information in the form of a discussion with Hamish about your views and experiences of using mICTs and recovering from depression.

If you are interested in taking part in the study, an appointment will be arranged with Hamish after you have received this information sheet in order to explain to you more about the study and answer any questions you may have. If you agree to take part Hamish will discuss the informed consent form with you and ask you to sign before arranging when and where we will meet for the interview.

When we meet for the interview our aim is to understand how you have incorporated mICTs into your everyday life; we would like to try and understand as much as possible your views and experiences and how using these technologies may have been both helpful and unhelpful in helping you to manage your depression. Hamish will ask you to talk about what technologies you use, how you use them, their good and not so good points and their influence on your life. He will also ask you about when you might not use these technologies and why. It is expected that the discussion will last around one hour. If you agree, Hamish will record the interview to make sure there is an accurate account of what we discuss. After we have met, we will listen again to our conversation and transcribe it in a written document. After the recordings are transcribed they will be deleted. The anonymised transcripts will be stored securely and no one apart from the research team will have access to them.

What are the risks or disadvantages of taking part?

If your health care professional has identified any risks Hamish may discuss them and their appropriate management before meeting with you. As you will be talking about your views and experiences of using mICTs and your experiences related to depression you might find this upsetting. If you feel or become distressed during the interview then the interview will be stopped immediately. A debriefing discussion will take place with Hamish. Then, with your permission, Hamish will contact the health professional involved with your care and give them a brief update. You will have the opportunity to discuss your feelings and/or concerns with your health professional and if appropriate seek further assistance from those involved in your care.

What are the benefits of taking part?

Your participation in this study will give you the opportunity to talk about your experiences of depression and using mICTs. The study may help other people with depression in the future by helping us understand people's perceptions and develop technologies tailored to their needs which will help them better manage their condition.

What if new information becomes available?

Sometimes during the course of a research project new information becomes available related to the study process. If this happens, the researcher will tell you about it and discuss with you whether you would like to continue in the study. If you decide to withdraw your care and treatment would not be affected. If you decide to continue in the study you might be asked to sign an updated informed consent form. On receiving new information about your health, your health professional might consider it to be in your best interest for you to withdraw from the study and they would provide reasons for their decision.

Are there any circumstances and/or reasons under which my participation in the study may be stopped?

Your participation is completely based on your willingness to take part and is entirely voluntary. If however you become too upset and/or emotional during the interview your participation in the study will be re-evaluated for your own benefit by myself and your health professional if necessary. If the researcher, or the health professional involved in your care finds that participation is more burdensome than constructive then your participation in the study will be withdrawn.

Will I be paid to take part?

Your participation in this study is voluntary and there is no monetary reward for doing so.

What if something goes wrong?

Complaints, insurance and indemnity

    a. Right to raise concerns.

If you have any concerns about your participation in the study you have the right to raise your concern with a researcher involved in conducting the study or a doctor involved in your care.

    b. Right to make a complaint

If you have a complaint about your participation in the study, you should first talk to a researcher involved in the study. However you have the right to raise a formal complaint. You can make a complaint to a senior member of the research team or to the Complaints Officer for NHS Tayside.

Complaints and Feedback Team
The Business Unit, Level 7, Laboratory Corridors B and F
Ninewells Hospital
Dundee DD1 9SY
Freephone: 0800 027 5507
Email: nhstaysidecomplaints@thb.scot.nhs.uk

    c. Right to make a claim

In the event that you think you have suffered harm as a result of your participation in the study there are no automatic financial compensation arrangements. However, you may have the right to make a claim for compensation against the University of Dundee or NHS Tayside. Where you wish to make a claim, you should consider seeking independent legal advice but you may have to pay for your legal costs.

    d. Insurance

The University of Dundee maintains a policy of public liability insurance, which provides legal liability cover in respect of damages, costs and expenses arising out of claims. Tayside Health Board is a member of the Clinical Negligence and Other Risks Insurance Scheme, which provides legal liability cover.

Will my taking part in this study be kept confidential?

All information that is collected about you during the course of the research will be kept strictly confidential. A unique study identifier will be allocated to each participant. Your name and any identifiable data will be removed. If you decide to take part the signed Informed Consent Form would be kept separately from any other information you provide and will be stored in a locked drawer for my use only and will not be shared with anyone else.

What will happen with the results of the study?

The information you provide will be used to draw general conclusions on how people with depression engage with mICTs. The results of the study will be used for research and education purposes (including presentations, reports and publications) with the strict preservation of your anonymity and confidentiality.

Who is organising and funding the study?

The study is being organised by the University of Dundee, sponsored and funded by the University of Dundee and NHS Tayside.

Who has reviewed this study?

The East of Scotland Research Ethics Service, which has responsibility for scrutinising all proposals for medical research on humans, has examined this proposal and raised no objections from a medical ethics perspective.

What happens now?

After receiving this information from the health care professional involved in your care, please return the pre-paid reply slip indicating whether or not you would be interested in taking part in the study. If you are interested, the researcher, Hamish Fulford will contact you. When he does, he will be able to answer any questions you may have and provide any further information you need. You will be given at least 24 hours to consider taking part in the study. If you are interested in taking part Hamish will then make arrangements for the interview. You will be asked to sign a consent form and, with your permission your Psychiatrist will be informed that you are taking in this study.

Who do I contact for further information?

Should you wish any further information about the study please contact the research team:

Principal Investigator
PhD Student
Hamish Fulford
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee DD1 4HJ
Telephone: 01382 388503

Chief Investigator

1ˢᵗ Supervisor

Dr Steve MacGillivray
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 381075

2ⁿᵈ Supervisor

Dr Linda Orr
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 388708

3ʳᵈ Supervisor

Prof Thilo Kroll
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 388655

If you would like to speak to someone about a problem or a complaint you have about this study who is an independent advisor, please contact:

Prof Tim Croudace
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 385062

If you are interested in participating in this study please return a reply slip (last page of this document) using the pre-paid envelope enclosed

Thank you for taking the time to read this Information Sheet and for considering the opportunity to take part in this study.

Participant reply slip

Hamish Fulford
PhD Student
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ

Dear Hamish

My name is …………………………………………………..and I am interested in participating in your research project. Please contact me so we can talk more about your project. My contact details are set out below:
Address:

Telephone number:

Yours sincerely,

PARTICIPANT INFORMATION SHEET - Clinician

STUDY TITLE

Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.

INVITATION
My name is Hamish Fulford and I am a PhD student at the School of Nursing and Midwifery, University of Dundee. I am doing a project as part of my course and I would like to invite you to take part in my study. Importantly, before you decide to take part I would like to explain why I am doing the study and what it would involve if you agree to take part. Please take the time to read the information sheet carefully. I aim to be as clear as possible when explaining my study to you and would be happy to provide any answers to queries or provide further information at any stage.

What is the purpose of the study?
The purpose of the study is to explore the views and experiences of using mobile information and communication technology (mICT) by people who have depression and the health professionals who care for them. MICTs are devices like laptop computers, mobile phones and computer tablets. I'm interested in understanding how people with depression have incorporated these technologies into their lives, how they use them, what they use them for and how they have affected people's recovery from depression. Also, importantly, how health professionals use mobile technologies and their views and experiences of their patients use. Results from this study will support the development of future technology and develop guidance for health professionals to use when discussing technology with their patients, helping to improve the care for people with depression.

Why have I been chosen?
Your unique experiences of caring for people with depression who use mICTs offers the opportunity to gain valuable information for the study and that is why I contacted you.

Do I have to take part in this study?
Taking part in this study is entirely voluntary, you are free to refuse to take part or withdraw from the study at any time without having to give a reason. If you choose to withdraw from the study any information provided up until that point would be included in the study without revealing any personal information.

What will happen to me if I take part?
If you agree to take part you will meet with myself for an interview at a location most convenient for you. At the start of the interview I will seek informed consent from you and ask you to sign a form if you agree. The interview will last approximately sixty minutes.

What will my responsibilities be?

You will be asked to give information in the form of a discussion with myself about your views and experiences of both you and your patients' use of mICTs.

If you are interested in taking part in the study please contact me and an appointment will be arranged with myself soon after you receive this information sheet in order to explain to you more about the study and answer any questions you may have. If you agree to take part I will discuss the informed consent form with you and ask you to sign before arranging when and where we will meet for the interview.

When we meet for the interview my aims are to understand how you have incorporated mICTs into your work; to try and understand as much as possible your views and experiences of how these technologies have shaped your patients' recovery from depression and your relationship with them. I will ask you to talk about what technologies you and your patients' use, how they are used, their good and not so good points, their social influence and their effects on your relationship with patients. It is expected that the discussion will last around one hour. If you agree, I will record the interview to make sure there is an accurate account of what you discussed. After the recordings are transcribed they will be deleted. The transcripts will be stored securely and no one apart from myself and my three supervisors will have access to them.

What are the risks or disadvantages of taking part?
As you will be talking about your views and experiences of using mICTs and your patients use of this technology you might find this upsetting. A debriefing discussion will follow with myself and if you feel it is necessary and with your permission I will contact a trusted colleague and give them a brief update.

What are the benefits of taking part?
Your participation in this study will give you the opportunity to talk about your experiences caring for people with depression who use mICTs. The study may help people recover from depression in the future by helping in the understanding of people's perceptions and develop technologies tailored to meet their needs which will help them better manage their condition.

What if new information becomes available?
Sometimes during the course of a research project new information becomes available related to the study process. If this happens, the researcher will tell you about it and discuss with you whether you would like to continue in the study. If you decide to continue in the study you might be asked to sign an updated informed consent form.

Are there any circumstances and/or reasons under which my participation in the study may be stopped?

Your participation is completely based on your willingness to take part and is entirely voluntary.

Will I be paid to take part?
Your participation in this study is voluntary and there is no monetary reward for doing so.

What if something goes wrong?
Complaints, insurance and indemnity

e. Right to raise concerns.

If you have any concerns about your participation in the study you have the right to raise your concern with a researcher involved in conducting the study or a doctor involved in your care.

f. Right to make a complaint

If you have a complaint about your participation in the study, you should first talk to a researcher involved in the study. However you have the right to raise a formal complaint. You can make a complaint to a senior member of the research team or to the Complaints Officer for NHS Tayside.

Complaints and Feedback Team
The Business Unit, Level 7, Laboratory Corridors B and F
Ninewells Hospital
Dundee DD1 9SY
Freephone: 0800 027 5507
Email: nhstaysidecomplaints@thb.scot.nhs.uk

g. Right to make a claim

In the event that you think you have suffered harm as a result of your participation in the study there are no automatic financial compensation arrangements. However, you may have the right to make a claim for compensation against the University of Dundee or NHS Tayside. Where you wish to make a claim, you should consider seeking independent legal advice but you may have to pay for your legal costs.

h. Insurance

The University of Dundee maintains a policy of public liability insurance, which provides legal liability cover in respect of damages, costs and expenses arising out of claims. Tayside Health Board is a member of the Clinical Negligence and Other Risks Insurance Scheme, which provides legal liability cover.

Will my taking part in this study be kept confidential?
All information that is collected about you during the course of the research will be kept strictly confidential. A unique study identifier will be allocated to each participant. Your name and any identifiable data will be removed. If you decide to take part the signed Informed Consent Form would be kept separately from any other information you provide and will be stored in a locked drawer for my use only and will not be shared with anyone else.

What will happen with the results of the study?
The information you provide will be used to draw general conclusions on how people with depression engage with mICTs. The results of the study will be used for research and education purposes (including presentations, reports and publications) with the strict preservation of your anonymity and confidentiality.

Who is organising and funding the study?
The study is being organised by the University of Dundee, sponsored and funded by the University of Dundee and NHS Tayside.

Who has reviewed this study?
The East of Scotland Research Ethics Service, which has responsibility for scrutinising all proposals for medical research on humans, has examined this proposal and raised no objections from a medical ethics perspective.
What happens now?

If you are interested, please contact the researcher, Hamish Fulford. He will be able to answer any questions you may have and provide any further information you need. If you are interested in taking part Hamish will then make arrangements for the interview during which you will be asked to sign a consent form.

Who do I contact for further information?
Should you wish any further information about the study please contact the research team:

Principal Investigator
PhD Student
Hamish Fulford
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 388503
Email: hifulford@dundee.ac.uk

Chief Investigator

1st Supervisor	2nd Supervisor
Dr Steve MacGillivray	Dr Linda Orr
School of Nursing and Midwifery	School of Nursing and Midwifery
University of Dundee	University of Dundee
11 Airlie Place	11 Airlie Place
Dundee	Dundee
DD1 4HJ	DD1 4HJ
Telephone: 01382 381075	Telephone: 01382 388708

3rd Supervisor
Prof Thilo Kroll
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 388655

If you would like to speak to someone about a problem or a complaint you have about this study who is an independent advisor, please contact:

Prof Tim Croudace
School of Nursing and Midwifery
University of Dundee
11 Airlie Place
Dundee
DD1 4HJ
Telephone: 01382 385062

If you are interested in participating in this study please contact Hamish Fulford using the contact details above.

Thank you for taking the time to read this Information Sheet and for considering the opportunity to take part in this study.

INFORMED CONSENT FORM - Patient

Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.

Name of CI: Dr Steve MacGillivray
Name of PI: Hamish Fulford
Please initial box

1. I confirm that I have read and understood the information sheet for the above study dated 11/03/2015 (V 2). I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without any medical care or legal rights being affected. I give permission for all consented identifiable data already collected up to the point of withdrawal from the study to be retained and used by the researcher.

3. I understand that relevant sections of my medical notes and data collected during the study may be looked at by the researcher and his supervisors and individuals from the Sponsor(s), University of Dundee and/or NHS Tayside, or on their behalf by a third party-, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.

4. I give permission for my interview to be audio recorded. My understanding is that these recordings will be destroyed after their transcription. All study data will be anonymised and be stored for five years.

5. I agree to my Psychiatrist being informed of my participation in the study.

6. I agree to take part in the above study.

_____ _____ _____
Name of participant   Signature   Date

_____ _____ _____
Name of person taking   Signature   Date
consent

1 for participant, 1 to be kept in medical notes and 1 for study file.

LETTER TO PSYCHIATRIST

Hamish Fulford
PhD student/RMN
University of Dundee
School of Nursing and Midwifery
11 Airlie Place, Dundee
DD1 4HJ

Dear Dr

Your patient   has agreed to take part in a PhD research study entitled "Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study". The PhD is a match-funded studentship between the School of Nursing and Midwifery, University of Dundee and NHS Tayside. The study has been organised by the School of Nursing and Midwifery, University of Dundee.

The study aims to explore the views and experiences of using mobile information and communication technology by patients with depression. The patient has agreed to be interviewed once as part of the study.

If you require further information or have any questions, please do not hesitate to contact me by telephone on 01382 388503 or email h.i.fulford@dundee.ac.uk

Yours sincerely,

Hamish Fulford

Patient Interview/Topic Guide

Interview Topic/Structure	Discussion/Key Probing Questions	Interviewer prompts
1) Exploring embedded nature of mICTs Aim: To understand how mICTs are being used and incorporated into daily living by people with depression	1) How do you use mICTs at present? 2) What do you do with your mICTs? 3) Are there times when you do not use mICTs?	• What hardware is used? • What software is used? • Internet? Games? Apps? • Where? Does location impact use? • When do they do it? • Who with? • Frequency? • If so, why? • If not, why not?
2) Explore motives regarding mICT use Aim:	1) How did you used to use mICTs?	• When did you first become aware of mICTs? • When did you first use mICTs? • What type?

To understand what led to the participant using mICTs	2) Why did you use mICTs at this time?	• Was there anything or anyone that influenced this? • What were the attractions of using mICTs at this time?
	3) How did first using them effect you?	
	4) How has your mICT use changed over time and how would you describe your use now?	
3) Exploring the benefits and challenges of using mICTs Aim: To understand the pros and cons of using mICTs by people with depression	1) What attracts you to use mICTs?	• What do you like and dislike? • Has this changed over time: personal factors, technological factors? • Why not other forms of ICTs?
	2) What are their benefits?	• Personal, family, social, employment
	3) What challenges do you face when using mICTs?	
4) Exploring the use of mICTs for self-management purposes Aim: Understand how mICTs affect self-management by people with depression	1) What did you do before using mICTs?	• Keeping well (Self-care), • Managing a mood related problems (self-management) or • Working with health care support (self-management support) • What has been Helpful or not helpful?
	2) How has using mICTs changed what you do in relation to your mood?	
	3) How do you use mICTs to manage your depression?	
	4) Has it effected your relationship with your	

	healthcare professional in any way?	
5) Exploring the effect of mICTs and social capital Aim: Understand the use mICTs for attending to social ties by people with depression	1) How do you use mICTs socially?	• What online and offline social networking activities do you engage in via mICTs • How does this affect your relationships • How does this affect your depression
	2) Does using mICTs provide social support?	• What kind of support? • By whom?
	3) Does this cause any issues?	
6) Closing the interview	Thank you for participating Chance to ask any questions Explanation of what happens next	

Patient Interview/Topic Guide **V2.0**

Interview Topic/Structure	Discussion/Key Probing Questions	Interviewer prompts
1) Exploring the sub-category 'The digital window' Aim: To further explore the emergent category and enhance its dimension and properties.	1) Why do you use mICTs? 2) How do you use mICTs to look after yourself? 3) How do you use your mICTs for social support? 4) Tell me about your thoughts of 'The digital window' and what it means for you?	• Introductory question to ease into interview. • Explore focused codes: 'a safe haven', 'digital filter' and 'survival tool'. • Explore focused codes: 'accessing social support', 'maintaining relationships' and 'social networking and mICTs'. • Explain concept of digital window without leading the participant and allow them the space to reply.
2) Exploring the sub-category 'A third hand' Aim: To further explore the emergent category and enhance its	5) How and in what ways do you feel attachment towards your mICTs? 6) How do mICTs influence your behaviour and the	• To understand their importance and differing levels of attachment: temporal changes, health changes etc. • Explore focused codes: 'accessing media and

dimension and properties.	experiences you get from using them?	entertainment', 'peripherality', 'transition of technology' and 'types of mICTs and use'.
	7) How do you navigate and negotiate the benefits and challenges of using mICTs?	• Explore the breadth and depth of the pros and cons of using mICTs and also whether 'health inequalities' plays a role.
	8) How do Mental Health Services interact with you through mICTs and what would be ideal for the future?	• Explore 'The digital disconnect'.
	9) Tell me about your thoughts of 'A third hand' and what it means for you?	• Explain concept of 'a third hand' without leading the participant and allow them the space to reply.
3) Exploring the core category 'Centrality through interconnectivity' Aim: To further explore the emergent category and enhance its dimension and properties.	1) Can you tell me your thoughts on how mICTs might play a central role in your life?	• Explore the physical importance of mICTs and how they place people in the centre of world.
	2) Can you tell me your thoughts on how mICTs might connect you to things?	• Explore interconnectivity.
	3) Tell me about your thoughts of 'Centrality through interconnectivity' and what it means for you?	• Explain concept of 'Centrality through interconnectivity' without leading the participant and allow them the space to reply.
4) Closing the interview	Thank you for participating	

	Chance to ask any questions	
	Explanation of what happens next	

Clinician Interview/Topic Guide

Interview Topic/Structure	Discussion/Key Probing Questions	Interviewer prompts
1) Exploring the use of mICTs clinically Aim: To understand how mICTs are being used and incorporated into working role	1) How do you use mICTs at present? 2) What do you do with your mICTs? 3) Are there times when you do not use mICTs?	• What hardware is used? • What software is used? • Internet? Apps? • Where? Does location impact use? • When do they do it? • Who with? • Frequency? • If so, why? • If not, why not?
2) Exploring the benefits and challenges of using mICTs Aim: To understand the pros and cons of using mICTs by health professionals	1) What attracts you to use mICTs? 2) What are their benefits?	• What do you like and dislike? • Has this changed over time: personal factors, technological factors? • Why not other forms of ICTs? • Personal, family, social, employment

	3) What challenges do you face when using mICTs?	
3) Exploring clinicians perspectives on their patients' use of mICTs	1) Are you aware of your clients' use of mICTs? 2) How do they use mICTs? 3) Has mICTs helped or hindered their management of depression?	• Self-care, self-management or self-management support • Help or hindrance?
4) Exploring the effect of mICTs on the therapeutic relationship Aim: Understand the effects of using mICTs by their patients and the effects on the therapeutic relationship	1. How has your or your patients' use of mICTs effected your relationship with each other? 2. Does mICTs come up in conversation with patients about managing depression? 3. Do mICTs form part of care planning with patients? 4. How might mICTs be incorporated into the patients' recovery from depression?	
5) Closing the interview	Thank you for participating Chance to ask any questions Explanation of what happens next	

Participant Demographic Questionnaire

Exploring the views and experiences of using mobile information and communication technology (mobile phones, laptop or tablet computers) by people with depression: A qualitative study.

Study ID:

1. Age:

18-25

26-55

56+

2. Gender:

Male

Female

3. Education:

Higher education

School/College/Trade

No qualification

4. Household income:

Less than £15,000

£15,000 - £25,000

£26,000 – 35,000

£36,000 – 50,000

£50,000 - £70,000

Above £70,000

5. Area:

Urban

Semi-rural

Rural

6. Postcode (First part plus one digit only):

7. Type of mobile device(s):

Mobile phone

Smartphone

Laptop

Tablet PC

Other (please state)

8. Time spent on mobile device(s) (per day):

0-1 hours

1-2 hours

3-4 hours

4+ hours

9. Number of days per week using mobile devices:

0-1 days

1-2 days

3-4 days

4+ days

Everyday

Appendix 6: Example interview transcript

Line No	Candy
1.	H: Thank you for coming in today, we've got up to an hour to explore how you use mobile technology and but that I mean stuff like smartphones, tablets, laptops, in your everyday life, you know, just how you use it in general and also how you use it with, to help with your depression, so hoping to start with, if you could just tell me how you use mobile technology at the moment and what technology you have?
2.	P: Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone. I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop and I do have a tablet and my iPod, everything's technology these days for me. So I, that's what I use regularly.
3.	H: Okay, so you've got a smartphone, laptop, iPad?
4.	P: iPod and a tablet
5.	H: iPod and a tablet, okay.
6.	P: Yeah
7.	H: And what makes are they, what have you chosen to use?
8.	P: My phone's a Nokia Lumia, my iPod's Apple, tablet is a Google Nexus and my laptop is Asus.
9.	H: Right, okay and you said that your phone is your life at the moment?
10.	P: Yes, it's my third hand.
11.	H: Is it, right
12.	P: Yeah I'm never off that thing.
13.	H: Really, maybe you could tell me more about that then, how is it your life?
14.	P: Well I don't have a house phone so that's my only sort of contacts, with no Wifi as well, so my only contact with the outside world is my phone and then because I do have depression, I have anxiety too, I struggle to leave the house, so the only way I would be talking to people on a daily basis is through my phone.
15.	H: Okay and how do you use your phone to talk to people?
16.	P: Well I can text people, I do, even just little, like text, like random things just to get a conversation started I get Facebook on my phone. My phoning my mum, cause it's like the way I can really get hold of her, I'll phone her. I've got WhatsApp so I can send pictures and because I can't do it with my Messenger, my SMS, I can't send

	pictures so I can use my phone now, like send pictures, like the cat, I've got a kitten and a cat so I'll go and send my mum stuff and they'll send pictures back and just, something to make my day really.
17.	H: Okay, so you don't have a landline, don't have like a house-phone so you use your smartphone to stay in touch with everyone?
18.	P: Yeah
19.	H: And that's through text and through voicemail, through just a normal telephone call, text, WhatsApp?
20.	P: Yeah, Facebook just…
21.	H: So you use it to get onto the Internet?
22.	P: Yeah
23.	H: Okay, so it sounds like your smartphone's quite important to you?
24.	P: Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
25.	H: Okay and is having contact with people important for you?
26.	P: Yeah, I don't think I would manage if I didn't have daily contact with people. I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody. And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
27.	H: And S is your worker in the mental health team is that right, okay
28.	P: Yeah
29.	H: So you use your phone to stay in touch with friends and family on a daily basis and when you need to speak to someone if you're having a bad day. Okay, so that's your phone, we'll probably come back to that later as well. How do you use your iPad then, what do you use that for?
30.	P: That's just Facebook if I have Internet, it's well sort of it's weird but sometimes my, my tablet will connect to Internet from nowhere. My flat so sometimes I'll get Wifi for about half an hour for no reason, it's not connected to anything, so I sits and lets me on Facebook and that so that's more just a nosey on Facebook I don't really use it to contact anybody, it's just there.
31.	H: Okay, use it for anything else?

32.	P: Games, that's about it, I don't really use it very much but I've got my games on it, got my Facebook, can't really message anyone it's not like my phone I don't get the option to message, I use it for emails sometimes, I need to email when I was applying for jobs I'd use that to email employers.
33.	H: Okay and you mentioned games, what sort of games do you like playing?
34.	P: Just like your usual, your tempo running a friend, just what every everyone is playing. I'm not very good at games so I just download what everyone's on about and see if I can play it to be honest.
35.	H: Okay, do you use that to help with your depression at all, does it?
36.	P: Well it's a distraction, if you're having a really bad morning and you need a distraction because I'm quite good at sitting in silence and getting myself worked up so I have that, I've got that in hand if I was wanting to try and distract myself. And there's pictures on there as well, old pictures that I've taken on Facebook so I like to look at my old photos it cheers me up a bit.
37.	H: Okay, what is it about the old photos that cheers you up?
38.	P: I don't like myself any more I think I've gotten really fat and I don't like the way I look so when I look at the old pictures when I used to be really skinny and pretty, it makes me feel like, at least at one point, but I hated myself back then as well so it doesn't make any difference but I like to look back. And then there's memories from my friends, I've had a family breakdown, my dad, he had an affair and he left us and it's nice to look at the pictures before it all went downhill.
39.	H: Right okay, so you, you use it to kind of reminisce on better times and it helps you feel better?
40.	P: Yeah
41.	H: Okay, and games you mentioned gives you a distraction from, what is it they distract you from?
42.	P: Yeah, the silence, when I'm having, when I'm having a really bad bought of depression I'm prone to self-harm. And instead of going for a piece of glass it would make me go for my tablet or my iPod or even my phone you know, play a game or my old photos it kinda stops me cause then you can't focus on, if I can't really focus, when I'm in that mind frame I can only focus on one thing at a time usually it's get the glass cut your arm, if I'm on the tablet I'm only focusing on tablet cause my mind just set, it doesn't work very well my minds not, I'm not at the right place at that time so it's easier to just look at one thing so my tablet will completely take away the need for glass cause I'm not.
43.	H: So that's, that's pretty good then?
44.	P: Yeah it's a good distraction.

45.	H: And how did you find out that that was, that worked for you?
46.	P: I started off with going for walks and then I started to get really bad anxiety, I've not had anxiety for very long, I've only had that a few years, my depression has been since childhood. So before I had my anxiety I would go for a nice walk and I'd feel better but then I started becoming housebound with my anxiety so I needed to find something else so my boyfriend gave me an Xbox, his old Xbox and that really helped playing games, sometimes I can't be bothered to get out my bed, my depression does it really effects me, not leaving the house and sometimes not even my bed. So having something to hand instead of getting up and stressing myself out so I can just grab the tablet, grab the iPod, grab my phone.
47.	H: Right so there's something about it being mobile that's useful?
48.	P: Yeah, yeah well if I'm up for going from one room to the other I can take that with me and there's no sort of, like you can't take your Xbox for a walk with you can you so you can take the phone or the iPod or the tablet.
49.	H; Right so if you're having a really bad day and you don't want to get out your bed you can still use that technology to stop yourself from self-harming or thinking negative thoughts?
50.	P: Yeah, I'm still distracted.
51.	H: Your laptop, how do you use your laptop?
52.	P: That's more like, well I've just last year stopped going to college I did a, I've been there. Had been there for two years so that was for like coursework. I did, when I had Internet at my mum's house we'd use that for Facebook and what not but now it's just more for like applying for jobs because before I was on jobseekers allowance when I left college so I would use it for like looking for jobs and sometimes a nosey on Facebook, listening to some music, don't really use it that much.
53.	H: Okay in terms of like your, you've got your smartphone, your tablet and your laptop, what, how would you put them in order in terms of what you used most?
54.	P: My phone would be first, laptop probably next cause if I do have Internet I sometimes Skype my friends' as well so laptop and then tablet.
55.	H: Okay so you use your laptop to Skype with your friends?
56.	P: Yeah if I'm at my mum's house I can use it I was using it, there was a girl I met from England and she had depression too but she was a lot worse than me and it helped to see somebody like what I could be if I kept going off the, in a bit of a crazy spiel thing, I could see that I could end up where she was and it kinda helped to talk to somebody who got it because not many people get it. So I used to Skype her a lot.
57.	H: Right so you spoke to her through Skype?

58.	P: Yeah I have her on Facebook and everything but I was able to talk directly to her through Skype.
59.	H: And so Skype is the software that allows you to see someone and talk to them?
60.	P: Yeah we videochat
61.	H: Videochat
62.	P: Yeah
63.	H: And are you okay with videochat? Is it nearly as good as face-to-face or is it the same?
64.	P: I prefer it because I, like that girl, S is her name. If I'd met her in real life, she lives in England, if she came to visit who knows what could happen because two people with a severe mental illness if they, what if they locked heads, something could really go down but at least if we like had a disagreement on Skype, shut the laptop and it's gone. It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.
65.	H: Sure, so what is it then that makes it safer compared to real life?
66.	P: Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it. But you can't do that in real life you have to deal with it there and then, you can't just kinda, you can try and walk away but if you try and walk from by boyfriend he will follow you so that causes me a lot more stress.
67.	H: So it sounds like you're in control?
68.	P: Yeah
69.	H: And that's, is that important for you?
70.	P: Yeah when you have depression and anxiety you're not in control of very much at all you're not in control of your moods, you're not in control of like I never feel happy, at least I can control something, you know you can, if someone's upsetting you, put them to the side and forget about it.
71.	H: okay, okay, that's interesting and the thoughts of control does that kind of, does that go to your phone and your laptop as well?
72.	P: Yeah, you know what my phone is brilliant. I've had an incident recently where a lot of my friends had turned against me and this has happened before, this happened

	a year ago, and a year ago I was a bit silly and I didn't use my phone to its full advantage and I just let them keep doing it. They started it again this year, they started a few days ago, I blocked all their numbers.
73.	H: What were they doing?
74.	P: It was, this is the downside of probably having the media with depression I was getting Facebook messages constantly I was getting text messages, I actually got threatened in the street and stuff and it sort of, it was kind of, it was all done through phones because this, it was a girls birthday party and that was in Aberdeen and I was here so we couldn't have a physical altercation so it was all done through Facebook and text messages but with my phone you can block numbers so I literally blocked every number that could message me, that would message me or that had messaged me that I didn't want to hear from and I've had no bother I've got on with my day absolutely fine.
75.	H: Okay, so it sounds like if you weren't able to block them you would've had a bad day?
76.	P: Well I've started self-harming again because of this incident and I've had to phone the NHS so it has affected me but it would have affected me a hell of a lot more if I couldn't block numbers so like the smartphones these days cause before you wouldn't be able to do very much on your phone now you can, one push of a button and they're gone.
77.	H: Okay, so you've been in control of the situation by blocking those numbers?
78.	P: Yeah
79.	H: Right so it sounds like having control I mean is there, is safety then important for you?
80.	P: Yeah
81.	H: Could you tell me more about being safe with technology?
82.	P: Well I'm not very safe in my own life like out-with technology I'm not very safe I self-harm, my depression leads to suicidal thoughts so if you're going to use something like a phone or that you need to be able to control how safe you are there because a lot of bad things happen.
83.	H: What sort of things?
84.	P: Like even just people, people like to see people suffer. You get those trolls who like to, well I got a text and it was 22 pages from a boy telling me to commit suicide to jump off, to take a, a long jump off a short bridge, one of those phrases, and all these nasty things and if that was said face-to-face that could have had a lot of a worse reaction but it's a lot safer on the phone because all you have to do is delete the message and block them. And it helps because I had to get the police involved if it was said face-to-face it was one person's word against the other's but I had it in

	physical, in my hand I could physically show them the text so the he got, obviously got in a lot of bother for that so I think phones are a lot safer.
85.	H: Yeah okay, so you've mentioned how you use the technology, when, is there any kind of pattern to when you use it, do you use it more, most in the mornings or is it in the evenings?
86.	P: Night time
87.	H: Night time okay
88.	P: Yeah, my depression's worse at night time. I seem to have anxiety towards sleeping. I'm on the strongest amount of meds I can get, I'm on the full dose for my anti-depressants so sleep's difficult for me so night time you're, I'm on my own you don't really have that instant access to speak to your friends they're all in their bed and I think as I said I live on my own so it's a lot more difficult so just going on the phone you can just scroll through your news feed and it's just comforting to know there's somebody awake. You don't even have to know the person but it's nice to just, and you're reading your news feed you're feel a little bit better. Like if somebody's in an argument or something you can sit there and think at least that's not me sort of thing.
89.	H: Okay, what is it about knowing that someone else is awake that's comforting?
90.	P: Just know you're not the only one in the world that can't sleep. You know there's people by the way, there's all different reasons they're awake obviously but it's nice and like you can just even if there's nobody really that you want to speak to you can just go to a nosey on people's Facebook's go through your own photos because I really like going to my photos so I would go through and look at my old photos and now that I have that, look back at my memories on Facebook so every day I can go and have a look at what I was doing a year ago today, two years, three years, sometimes it's good because you can see that you were having a massive breakdown a year ago and today you are feeling fine or maybe three years ago you were doing something you really enjoyed so you can think to yourself well, maybe I'll try and do that again like go to Codona's, why don't I try and get that arranged because obviously I had a ball three years ago today.
91.	H: Right okay so using your technology to look back in time to times when things, you were feeling better or doing things that you liked is helping you feel better in the moment?
92.	P: Yeah
93.	H: And maybe think of things to plan in the future?
94.	P: Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable

	living at home and then I can sit there and think of everything I have achieved since then.
95.	H: Okay so it gives, using Facebook for looking at photos and having that information stored somewhere gives you the opportunity to kind of see how far you've come and give you a sense of achievement?
96.	P: Yeah and that's really helpful if you're feeling really down about yourself and then somethings actually saying actually do you know what you've done really well. You feel a little bit better and maybe the bad thoughts will go away for a while.
97.	H: Okay grand, do you use the technology in any specific way to help you get off to sleep?
98.	P: Well I have a routine and it does involve my phone but when I go to my bed I usually have a bath because I'm quite, my anxiety is bad so try to get as relaxed as possible, have a bath, I go to my bed, I scroll my newsfeed, no matter what I'll scroll that newsfeed if I've got insomnia I'll go and play on my phone, my phone tires me out, if I turn the brightness down, if it's too high it hurts my head but I'll sit and play like Subway Surfer because it's easy and it just puts me to sleep. I'd go on my phone every night before I go to sleep, never have I not been on my phone, I don't like my phone dying either, my phone is never dead because I would just freak-out if it died.
99.	H: Okay so is your phone always switched on?
100.	P: Yeah
101.	H: And it's always charged it sounds like?
102.	P: Yeah, I'm better now because my boyfriend keeps me kind of grounded but when I was younger the worst thing that could happen is that phone would die, like it dies, if I go to Dundee shopping for the day I normally know it might die but it's not as big a deal as it could be but I try and keep it on, I don't know I just feel anxious if it's not on.
103.	H: Okay so how do you feel if you left it at home or you lost it?
104.	P: I would go right out and buy a new one, I have the money. So…
105.	H: It's important to you?
106.	P: Yeah, no I, it's just key to my depression, I mean people don't really explore that sort of side of media it's always what's the negatives, that gets me through a lot. So I think that that's the key to it for me to get better, is to have my constant contact with people. You know, forcing me to go outside and see my friends is going to make me a lot worse and I'm probably going to cry and get really frustrated and upset and my friends aren't going to understand and they're going to get mad at me at least if I've got my phone I can send them a text to let them know I might not actually be physically with them but it doesn't mean I'm not still their friends and keeps me in touch with them all. When I went away to Edinburgh recently I was still texting everybody letting them know what was going on and I went to the zoo and I sent

	everyone pictures of the pandas and stuff just to let them know that they're not forgotten because I'm not there.
107.	H: So it allows you to keep your friendships going because friendships take work even if you're finding it difficult to get out the house…
108.	P: Yeah, then I can always do something, even just sending them a funny picture off the Internet. That's totally suited to them, like if one friend likes a TV show you might send them a funny picture of that TV show and it shows that you're thinking about them you care about them, don't actually have to physically be there and then me and my friends like we're always there's always some sort of drama and somebody will say 'oh like you don't even care', well they can't, if you're texting them they can't really say that. So you're in constant contact, and even if something happens like if there's a TV show that I think my best friend will like I'll text her 'Channel 1 this is on you should give it a watch you'd love that', just little things, it makes you feel like you're not on your own.
109.	H: Okay, sure. So you use it mostly in the evenings but it sounds like you use it through the day as well?
110.	P: Yeah my Internet because I don't have Wifi my phone network's really rubbish and the Internet only really works at night time. I don't know why but from about eight o'clock onwards my Internet will be fine but I can use it out of the house like just now I could probably get on it. I'm mostly at night because I'll be in my house at night.
111.	H: Okay are there times when you choose not to use it, like specifically not to use it?
112.	P: I turn it off if something is kicking off.
113.	H: What do you mean by kicking off?
114.	P: Well this instance that I've been referring to was a friend's birthday party and she knew it was planned for her and so she asked if I was going and I said no because it was my two year anniversary with my partner so I says no I'm going away to Edinburgh. On her birthday party I texted her saying have a lovely day sorry I couldn't be there, she pretended like she had no idea what I was talking about which turned everyone completely against me and then so everyone's texting me you've ruined this birthday party, so I just turned my phone off. I was I don't have to hear, I was in Edinburgh trying to have a great day with my boyfriend going to the zoo, deep-sea world, having a ball, just turned it off for half-an-hour until I was in a better frame of mind to deal with the texts. Cause I could've, I did just block their numbers but right in that moment you have to open the text to block the numbers so you know what's been said. So I turned it off, had a ball looking at the monkeys and the pandas and what-not, when I felt better I turned it back on and just blocked it all.
115.	H: Okay so again you chose to be in control of that?
116.	P: Yeah, I don't have to listen to them giving me abuse I can just turn the phone off.

117.	H: Right okay, do you use any kind of apps at all on your phone?
118.	P: Just WhatsApp I think.
119.	H: Nothing else, nothing specific?
120.	P: Not apps no, just WhatsApp.
121.	H: Just WhatsApp okay and that's like a free messaging things isn't it?
122.	P: Yeah
123.	H: Do you, so that's kind of, you use your smartphone to get you on the Internet, to get you on to like social networking sites, to use WhatsApp and texts, speak to people, do you ever, do you use any of the inbuilt functions at all for any reasons? Like by that, for example the calendar or the alarm?
124.	P: Yeah, yeah, no I do use it, I use my alarm, this morning for instance I had to get up at half ten, that's not, well, if I don't get to sleep until three in the morning half-ten can be quite early so I make sure I'm up. I also babysit my partner's got two disabled cousins who need a lot of work and I offer to help one day a week to look after the kids so I need to have an alarm to make sure I'm up and ready because that, the little boy gets home from school, if I'm not there then no one's there. My partner has two jobs so he needs to get up at two in the morning so if he's staying at my house there needs to be an alarm on or he will not get up. I use the calendar to remind me because my calendar is an alarm as well so my calendar will set an alarm off on that day to let me know what's happening, so like today this meeting, had to make sure I had an alarm so I wouldn't forget, have my alarm on every second Tuesday for S or I will forget, my minds a bit, well my minds always going so I'll forget the little things.
125.	H: Yeah and that's a symptom of depression isn't it?
126.	P: Yeah, yeah.
127.	H: So you're using your phone to help with that?
128.	P: Well yeah, I don't want to forget like S appointments are so important to me, if I miss them I could be going two weeks without an appointment. And that's probably not the best for me, cause I need regular contact to keep me afloat so if I missed an appointment I could be really hard hitting to me.
129.	H: So that could be a fortnight between appointments for you?
130.	P: Yeah so I need my alarms and my calendar.
131.	H: What about reminding you to take medication?
132.	P: I used to use it to remind me now I remember myself because that was I said you kind of, if your alarm's going off same time every day you start to remember. I don't take my meds at a certain time either anymore, I don't know, I've went through, it

	was really bad but the doctors surgery was a big bank holiday didn't realise was off my anti-depressants for about a week and then I ran out of my anti-anxieties, my anti-anxieties beta-blockers and I get three a day if I need them so my beta-blockers don't need an alarm I can take them whenever I need it, my anti-depressants should really be taken at the same time but I'm experimenting just now because I'm thinking my medication's preventing sleep so I'm trying to figure out what time of the day is best for me so just no I don't need an alarm for them but once I'm in the, figure out what time I want to take them at they'll be an alarm on every day for that time.
133.	H: Right okay so that would be another useful function?
134.	P: Mmhmm
135.	H: Okay, grand, so we've touched on the benefits and you've mentioned some more challenging aspects of technology such as the trolling any other sort of challenges that you face with the technology, with the, using mobile phones and laptops and tablets?
136.	P: Well if your Internet doesn't work and you're really needing to, if the networks down and you're needing to get on something, like I've got a depression forum I use regularly if I couldn't get on that if I needed it that could cause a lot of stress and then thinking about, this is me personally but if my phone, say my signals dodgy or well my mum's signal was down the other day and every time I tried to send a message it said message failed so I thought that was my phone so I got myself up to a 10 out of 10 for stress thinking my phone was broken but it wasn't. So technology's not always reliable my charger doesn't always work as well. It's expensive, so if my phone breaks, I'm on ESA for disability because of my depression and anxiety so I don't get that much money, well I do now I've got quite, they give, they've put my money up now because my depression's so bad they've given me extra support but when I first moved out I just picked up my bags and walked out one day because I couldn't handle living with my mum any more. I was given a flat with no carpet, no oven, no nothing so if my phone broke as well when I had nothing anyone I just don't know, I probably, this sounds ridiculous but I probably in that frame of mind would have committed suicide. Because I had nothing else, everything I didn't, I couldn't eat, I had to live off microwave nuggets, it was disgusting. I had no carpets so I was cold all the time, didn't have sofas, I had nothing but I had my phone.
137.	H: So your phone in some ways kept you alive then?
138.	P: It does, if I'm having a bad day I could phone my boyfriend, he's really good, he keeps his phone on so his phone helps as well because he keeps his phone on all night on full volume so if I'm having a breakdown at three in the morning I can phone him and he'll be right up at my house. So, I have that instant sort of communication if I need it. And if say for some reason his phone was not on, which wouldn't happen but say this did happen, I could just phone up Breathing Space or NHS 24, like so constantly, but then if I can't get through to them it can cause issues as well, their lines can be clogged up so if you're on the verge of suicide and you're trying to get help and you can't get it, you know what I mean, so there's good points and bad points to.

139.	H: Okay, you mentioned that you use a depression forum could you tell me a bit more about that?
140.	P: Yeah, it's a website called patient.co.uk and I think there you can use it for anything, any illness you've got I think you can probably use it for. And it's a forum within a forum, it's like one big forum and then there's loads of mini ones so just like mini chat rooms and I've signed up to two myself, I've got, no three sorry, I've got the depression one, the anxiety one and the Citalopram that's my medication, the Citalopram forum and you can post questions and people will answer them and people, there's always people online because it's support, it's global so I could be having a breakdown at three in the morning and somebody in another country will be awake. And, so you can post questions but you can also answer questions so if, if somebody is, an issue you think you can help with you can reply but they also have like, it's like a reward scheme sort of thing so say you answered ten questions you might get like the an achievement sort of, it's like almost like a game, you get, you unlock an achievement for being like a, like a good helper and then it levels you up almost like Yahoo, and so when I was having, I was, I have a lot of difficulty I was mentally and physically abused in childhood so and I really struggled to accept what happened so I posted on that site asking does anyone else have this problem and I had about twenty people reply and big paragraphs and people were telling me their stories. One girl was a mother whose daughter was physically abused by the dad so I could see it from my mum's point of view which was new to me because I had never seen it from her point of view and then there was people my age who were going through the same thing, there was adults who were telling you it gets better, I've been there, and there's people who are telling you don't feel guilty for, don't feel bad for being mad because my dad's got MS he's dying so I feel guilty that I'm not able to accept and make up with him so like they, their support and their help kind of helped me realise I don't have to forgive him I don't even have to acknowledge him and that's where I am now with no contact. And then there was a girl who was having a panic attack and she put, her friends had booked a trip to the theatre to get her out of the house and she really didn't want to go and she was having this almighty breakdown so I spent two hours just talking to her on this forum she ended up going to the theatre came back and she was like I couldn't of done it without you, thank you so much and it made me feel like I had helped somebody get over their anxiety for a day and it really made me feel better.
141.	H: Okay grand so, you used this forum to gain different perspectives on what you've gone through, like your mum's perspective?
142.	P: Yeah, they give you coping mechanisms too because there's, there's your usual going for walks and taking baths but that's what people say who don't know what depression is that's what people, that's the norm, that's what you should say, you get people who are sitting there saying instead of cutting your arms getting cranberry juice put it in the freezer and ice it put the on your skin looks like your skins bleeding so you feel like there's a release even though you're not hurting yourself but doctors aren't going to tell you to do that so they give you things that work.
143.	H: Right so you feel using the online forum you get advice from people that have been through it so their advice is more helpful than professionals?

144.	P: Yeah, it sounds really bad because the professionals do know what they're doing they wouldn't have their degrees if they didn't but unless you've sat through depression you can't really say you understand because depression isn't just feeling down for a day I've had this since I was eight years old like this is my life has been a nightmare so to hear the doctor say like it's going to get better well how do you know there's people in that sight that tell you in never goes away and it's nice to accept it when you're twenty years old than still be fighting for your health when your forty and realising you're never going to get fully better.
145.	H: Right, okay so it gives you, the depression forum which you're membership to three others gives you support and advice from people that have been there and know what they're talking about?
146.	P: Yeah
147.	H: And how often would you use that sight?
148.	P: Well every time a new post is put on the forum I get an email to my phone so I'm never off it.
149.	H: Okay so daily?
150.	P: Yeah, I mean I can't always post on it because my Internet's not very good but I can always read what people are posting so even just reading it can be helpful like it sounds really selfish but seeing that someone's in a worse situation than you gives you new perspective like 'oh my goodness they had that happen to them and I'm like this and why?' And then some people were posting I get really bad shakes and I thought that was just me but somebody posted on the Citalopram page saying does anyone else get the shakes on Citalopram then the lightbulb clicked it's the medicine that's making me shake. So it's given me lots, it's just given me more knowledge of my situation as well.
151.	H: Okay so it's helped you understand your condition and recovery a little bit better?
152.	P: Yeah and my medication because the doctors just tell you to read the leaflet, they'll tell you maybe you might get some side-effects but they don't go through them with you. You get like ten minute appointment they can't, they don't tell you how to cope with your side-effects so at least you're getting like proper in-depth, first-hand knowledge, people who have actually taken them not the doctors who know, well they've read a text-book, they've not taken them themselves, they don't' know how bad the cold sweats can get at night, they just read what it does. At least you can get somebody who are like yeah I've been there it'll only last a week.
153.	H: Okay
154.	P: Sort of thing
155.	H: Any negatives to using the forums at all that you've come up against?
156.	P: Yeah, you feel, if somebody's writing that 'it doesn't get better' because I know that mental illness it doesn't just go away and it will be there for life, it doesn't just

	cure, but sometimes when you're having a really bad day and then a message comes through saying it's never going to get better it's just another reminder you're ill. And people post that they feel suicidal cause they're looking for support or they're wanting to self-harm, it puts those ideas in my head.
157.	H: How do you deal with that then?
158.	P: Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.
159.	H: Right so I suppose, again you're in control and you chose what to read and when to read it and whether to delete it or not.
160.	P: Yeah, media if used correctly and maturely, not by 14 year old children that are using it to cause fights can probably help with anything but its abused.
161.	H: It sounds like it from what you said. And how did you learn to use it maturely did, have you had, has professionals guided you on good use?
162.	P: No I've had to go through a lot of the, when you're younger and you're using the Internet you think you're invincible and I did that I was thirteen and I was on chatrooms and grown men were doing things to themselves and I was only a 13 year old girl and like that was bad use of technology because I was abusing my parents trust with it and I was, like there was things that totally influenced how I grew up was like what people were telling me when I was younger online. People, it's like a war, like on Facebook if you only get four likes on a picture you're obviously not very pretty but some people are getting like 200 hundred likes on a photo. When you're younger that's the end all and be all, people would commit suicide over thinking that people didn't like them but then people don't realise that these people that are getting two-hundred likes on a photo have about two-thousand friends on Facebook. So for me I might only get like 5 or 6 likes on a photo I've only got 200 friends on Facebook but if I've used, if it's not used very well, children use it like, take the mick out of it like they go onto these askFM sites don't use these sites if you're not in the right frame of mind you know it's just common sense but children at that age think they're invincible.
163.	H: What's askFM?
164.	P: It's an anonymous, you can ask questions anonymously and it led to the suicide of a 15 year old girl in England about a year ago. People were constantly calling her names on it and telling her she should go and commit suicide so she did it. And people are saying ban it, ban that website its bad, don't ban the website ban our children if they can't use it appropriately.
165.	H: So when you were younger in your early teens, you might not of been using it the most responsible way
166.	P: No
167.	H: But it sounds like that's changed?

168.	P: Yeah
169.	H: So how did you learn to use it in a more helpful way? Did you get shown or did you…?
170.	P: No, people don't, at school you're not, I remember being in primary 2 or 3 when the computers were just being put into schools you were never taught how to use it. You were given like paint, you know like the paint thing, it's like a, one of the like built in settings, like a game or something but you just you can paint and they ley you do your painting and they never really taught you and then in computing you were taught how to do coding and that's about it you were taught how to use the codes and you were never taught how to use the Internet safely and my parents who, well my dad was born in the sixties, mum in the seventies, they didn't really have much of a clue, they rely on me and my brother to teach them so you have to learn for yourself really and if you're lucky you won't by your experiences cause too much grief but that's probably why people are so against using the Internet to help with mental illness as such because it can lead to bad things like bad thoughts and suicide. But you have to learn for yourself I think I don't think people can really teach you they try but you're not going to listen.
171.	H: Who's tried?
172.	P: Like some teachers probably do try, I've never experienced a teacher who's told you not to. You get pop-ups on the computer that tell you have to use safe Internet or what-not.
173.	H: In terms of your recovery from mental health and depression, how many doctors or professionals sat down with you and talked about helpful ways to use the Internet or helpful sites to use or have you found out, you know, the way you use technology have you found that out yourself?
174.	P: Myself. I did a, I was at college and I studied, I wanted to be a social worker so I was doing social care and so the use of like the helpful websites came from that because we had to study them so you had to like be a social worker you had to write like a whole like, it was like a whole report on how you would approach a depressed teenager so you had to study all these sites that's how I learned about everything was through my own research for reports and stuff for my college.
175.	H: Right okay. If, do you think it would be helpful to have in hindsight have had a professional that could have gone through that process with you?
176.	P: Probably, especially when I was younger, cause the Internet everyone uses the Internet like teenagers are obsessed with that so if they knew how to use it to its full advantage you know the Internet doesn't just end at Facebook but that's what teenagers think. Facebook and Google why if, when I was younger I should have used like ChildLine they have a, it's like Instant Messenger with a professional but you have to wait in a queue to speak to somebody but it's just like MSN, Facebook messenger you can speak to a professional over like just typing to them. If I knew back then when I was younger because I was self-harming since I was eight so I've went through this a long time I probably could have got a lot more help if I knew, if

	my parents didn't want any help they wanted to pretend I wasn't ill but I could have helped myself if I knew about that.
177.	H: Okay and at the moment if there was a member of the service that helps you that was, you know, specialised in using technology and the Internet would that be something that you would want to engage with?
178.	P: I would definitely hear them out. I think it would be helpful more for the younger, well maybe even older, people that don't really understand the Internet, do you I probably would go cause I'm sitting here acting like I know it all but I don't, I've only scratched the surface of what could help me online. So yeah I think it would be helpful for anyone even if people just roll their eyes and think it's rubbish one day they might need, need that sort of support, it's instant and it's 24/7 online you don't get that over the phone from some charities or you can't, I can't speak to S (Mental Health Professional) at three in the morning when I'm having a breakdown.
179.	H: Well that brings me on to if there was such a person or service what would you want from it? What in an ideal, you know, if I had a magic wand and you could get anything you wanted from like a technology service in the NHS to give you support and advice on websites and Internet, what would you want?
180.	P: To be taken seriously first of all because health professionals they'll give you what you need, like there's your Citalopram now go away and don't kill yourself. You would want them to sit down with you and speak to you as a equal not talk down to you because they know better because they know more about the Internet because that's how I feel the doctors are as well with the pills. I'd want them to know what they're talking about, you know, it's easy enough to go on this website it's called Breathspace, well let me know what Breathingspace is, it's a charity, yeah well what does it do, you know, like, actually know what you're talking about cause sending me on a website I can get really confused. If the website is complicated I'm not very technical, I was never, when I was younger I didn't have a computer or games consoles that was my brother I was the one that was outside climbing up trees I had no idea about all that. So they would need to explain it and they could probably do with making, like say the NHS had a technology, I know they have a website for like, they have their own website but they should really have one designed for mental health and maybe have the websites on there and have them explained cause just now it's not easy finding them and like if you go and Google mental health help you can get Australian websites, American, you need one kind of local.
181.	H: And you mentioned being able to contact people at 3am?
182.	P: Mmhmm, that well people get more depressed when they're, when it's bedtime. It's all well and good having a phone line during the day, but during the day if someone's having a breakdown they're not going to phone a charity their probably going to phone their mum or their going to phone their friends, though what happens at night time when everyone's in bed, the whole world goes to sleep and you're still up really upset.
183.	H: Mmhmm, so would that be an opportunity for Skype or…?

184.	P: If there's people awake.
185.	H: Well remember I've got a magic wand.
186.	P: It would be good to have somebody to be able to, that would be good having a face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they want to be there. So I think like a video thing would be brilliant for mental health.
187.	H: So there's something about seeing someone's genuine interest is important?
188.	P: Well yeah you hear, like even my friends if I'm having a breakdown, like 'oh well it's ok you'll be fine', they're not really bothered they want to get back to what they were doing but if you seen their face they would have to act a bit more sincere which would make you feel a bit better.
189.	H: Okay and Skype might, video-conferencing or Skype could do that?
190.	P: Yeah I think that would be really good, I never thought about that before but I'm, that.
191.	H: Right okay so, a website that is easy to find?
192.	P: Mmhmm
193.	H: That, and people that support you that give you advice that have actually been on the websites and know how to navigate them?
194.	P: Yeah because it does get a bit confusing.
195.	H: Right and being able to have face-to-face time through the Internet with people that can help all through the day and night?
196.	P: Yeah
197.	H: Anything else that if anything could be set up to help? How do you communicate with your support systems at the moment in terms of the NHS?
198.	P: Phone them.
199.	H: Like, just a normal phone?
200.	P: Mmhmm
201.	H: Would there be other ways that you'd like to communicate with them?
202.	P: Well it would be nice to get them face-to-face (laughs) but through, I don't know, it would be really handy, see what happens with S is I can just text S and that's instant and she'll reply so why can't you text, have like a texting service, do you know what

	I mean, some people don't like speaking on the phone, some people would rather sit there miserable than speak, some people rather text, so maybe having somebody to just on the other end of the phone to text. Would be handy.
203.	H: Okay, so some people actually prefer typing and texting instead of picking up the phone and chatting to someone?
204.	P: When I was younger that was me I didn't like phone-calls. Having moved into my own flat I don't have a choice, the council are always going to phone and people are always phoning you but when I was younger I would not answer a phone-call I would just text. If I had a random number phone me I would text them back saying who's this I wouldn't answer my phone. And a lot of younger people don't have the money to top up their phones so you can get cheap tariffs where you get your unlimited texts and most people do have their unlimited texts now but not many people have minutes. So like my phone topped itself up today, I'm on a monthly almost like a contract but it's not a contract I'm on a, my phone's a pay and go but the website I use will top it up monthly so before today I had no more minutes I ran out of minutes I couldn't phone anybody so say I needed like a professional to speak to I could, if it was a charging number I couldn't phone them. I would have to, if I could just text somebody or even just text somebody saying I've got no more minutes I'm having a Breakdown could you phone me.
205.	H: Okay, so, younger people are more likely to have free texts than money to call people?
206.	P: Yeah, mmhmm.
207.	H: So that might be an opportunity to improve services?
208.	P: And it's cheaper to send a text, you're what? I think you're about twelve pence to send a text nowadays but you're about a pound a minute, something ridiculous like that, and some of these numbers are 0845 and my phone doesn't even let me phone them.
209.	H: Okay so cost comes into it then?
210.	P: Mmhmm
211.	H: Okay, grand, so you've mentioned ways of using technology to keep you safe and keep you well what, what are the most important aspects of that for you then?
212.	P: How do you mean?
213.	H: How do you use the technology to, to manage your mood?
214.	P: Well if I'm in a bad mood it can change me into a good mood because I can go and text somebody or if I', something really bad happens, like I had a really bad incident with my dad which, quite, well a couple of months ago which really messed with my head and I could have went off and tried to commit suicide but I didn't I phoned my friend and that kept me safe because there was somebody on the other end of the phone so then instead of getting so upset and having no one to talk to you had

	somebody to explain what happened and because I phoned my friend she was able to come meet me before I went off on one.
215.	H: Right, so it sounds for you then, to have like a social network whether it's real people and real life or through the Internet and Facebook or
216.	P: Yeah
217.	H: Having these social networks are ways of keeping you well.
218.	P: Mmhmm
219.	H: And your main contact with people in the real world or people online is through your technology, is that the best way to describe it?
220.	P: Yeah, yeah.
221.	H: And without them?
222.	P: I would have nothing. I would have no contact with the outside world. If I was having a bad bought of anxiety I could be in my house for a week, two weeks without leaving. How could I, if I didn't have my phone how would I have any contact with anybody. Cause people don't just come to the house, my house has a buzzer so I, if I can't get out my bed I can't let anybody in the house and then because I'm not leaving the house the house gets in a big mess so I don't want anybody in the house anyway. So if I'm having a bad day my house is a mess, the thought of having to go and get out my bed to tidy up would be really distressing. At least I can just go and text people now and I can still speak to people without having to put myself under any extra stress.
223.	H: Okay and speaking to people does it, does it help you emotionally?
224.	P: Yeah, I have CBT with S and that's a lot of just talking through the past so I find that really helpful talking and there's a lot of my past which only comes to me when I'm reminiscing and speaking to my friends about it because I've had a lot of bad experiences that I've blocked off so it helps me to come back and remember what's effecting me because there's things in my mind that must be effecting my behaviour that haven't came to me yet. I think it's Freud who studied the mind into three sections and I'm sure that it must be memories there that are still affecting me so to talk it through brings back these memories then when, the more memories that come back the more I can deal with them and hopefully get over this depression.
225.	H: Okay and so it's talking through with your friends and family either in real life or online through your technology that could bring up these memories? That you can then kind of work on to help in your recovery and your way of having these conversations is through your phone?
226.	P: Yeah
227.	H: Mostly?

228.	P: I only really speak to people through my phone. There's a lot of friends I have that I'll speak quite a lot on my phone but I won't go out of my way to do anything with them which is really bad but and then I've got friends from like England who I couldn't just go and say hi to who get it like S who understands.
229.	H: Okay, and with, in terms of social networking sites online, you use Facebook are there any others that you use?
230.	P: Not regularly. I've got my, I've got a Twitter account.
231.	H: What do you use that for?
232.	P: Well just reading, like, follow celebrities see what they're up to. Kind of boring but it's like, almost like having a magazine isn't it, you can read what they're up to without having to go and spend all your money on buying a magazine.
233.	H: Right okay, so you mainly use Facebook?
234.	P: Yeah Facebook, trying to think, I don't really go onto anything else. I went on the MS society just to try and understand my dad's behaviour towards me but that didn't really help so I don't really use that any more.
235.	H: Okay. So you use the Internet then to find information about certain conditions?
236.	P: I'm always on Google. Any time I have a question or something pops in my head I'm always on Google, I like to learn.
237.	H: So you use Google to learn, to find information that you're wanting?
238.	P: Yeah well I can't go back to college. I really enjoyed college, I love studying, I love learning so I'm even thinking of taking up an Open University course at home because I really don't think I can manage. So it would be good to be able to still do what I love which was I love studying I really want to be a social worker and I tried really hard and I got all A's so I'd love to be able to continue that but not have to travel to Aberdeen.
239.	H: So doing that on the Internet is one way?
240.	P: That's opening a lot more doors for me because I would still get the qualifications without having to cause myself a great deal more anxiety. And then I'd fail if I have to go, if I had to travel I'd fail my course because I can't always make it in because my anxiety is too bad and not many lecturers are like, oh that's fine yeah anxieties playing up, they're just like, get over it.
241.	H: Okay so using mobile technology can open doors for you and help you keep well and help you get better if you're having a bad day?
242.	P: Yeah
243.	H: And at the very start you said it's like having a third hand?

244.	P: Yeah like I always have it. It's just instant as well not much these days you can get, if you're needing to speak to somebody you don't always get them straight away but you somehow need them straight away so at least having a phone there's always somebody you can speak to.
245.	H: And is your phone always close by?
246.	P: Yeah it's in my bag right now.
247.	H: And so wherever you are it's within arm's reach or?
248.	P: Yeah, it's usually sits in my bedside table at bedtime, in a pocket, I can leave it one room and go into another and I'll just put it on volume so if I'm needed I ca run back. I do lose it more than I have it, it's always going missing and my cat tries to eat it so he takes it away but it's always there, I can always grab it.
249.	H: We're coming to the end but in terms of working with your support workers and like S, do you, if you had the opportunity to work for example on a tablet and you were working on stuff together so you could take it away and have it there so you could flip back and see would that be helpful or?
250.	P: Yeah, yeah.
251.	H: Or do you work with paper at the moment?
252.	P: Yeah she writes it all down and takes it away with her because she'll need to re-read it to see where we're going to start off the next time but it would be good if we both had a copy and like digitally is a lot well she could lose her bit of paper and that's a whole session and she does do that so that a whole session kind of gone but if it was, if you put it on like a tablet and save it well on my phone I have, we were talking about apps, I do have an app I totally forgot about and it's the, it's called OneNote but it's like Word and stuff so if I needing to say I was writing a letter, an email, I could just type it up there save it and go back to it later, that could be really handy for sessions because all she would need to do was type up what was being said, save it then send it to me and then that's us both got a copy.
253.	H: Right, yeah because I think you said that you found it useful to be able to go back in time and remember stuff from your past?
254.	P: Yeah, so if I was having a really, say today for instance, I'm in a fine mood which is great so if I wanted to make myself feel better I could go and look back on some sessions and think blooming heck I've came a long way, look how bad I was feeling that day and when I was fifteen I had a worker at Barnardo's and I would have loved to be able to read those sessions as well because she was brilliant, the woman I had was brilliant with me and some of her techniques I've now forgotten, because I'm twenty now that's five years ago, and my memory blanks things out now because of my depression.
255.	H: So having a like almost like a journal of your sessions together?

256.	P: Yeah
257.	H: And the work that you're working on together?
258.	P: Yeah, well if I could read back to what my worker K had she had loads, she came away with all these phrases which were hilarious but were so meaningful and if she'd wrote all these down and I had a copy of them when I was feeling down I could remember what she would say and all her techniques. I could read, like I know when I was younger I was really really bad for depression and I'd love to be able to go back and see and say to myself you're obviously getting better you're not as bad anymore but I can't because it's not been documented.
259.	H: Yeah and it would be helpful to be able to do that at the moment?
260.	P: Yeah, I would love to know lots and then if it was documented I could even always have like a piece of S with me, it sounds really silly but, like S, the thing she says if it is written down I could take that away and when I'm feeling down I could read it instead of having to go phone somebody I could maybe just read it and be like, exactly S said this it's only two weeks I'll be fine, but just now we don't have anything like that just now.
261.	H: But that would be helpful if you could?
262.	P: Yeah, it would help a lot of people not just me. It's really handy to be able to look back, that's what I do I always, I'm always looking back to try and move forward. I need to deal with the past before I can go into the future. It would be a lot better if I could just like Facebook it documents everything I can re-read it, it would be good if you could do that for sessions.
263.	H: Right, okay, anything else along those lines that you think might be helpful? That isn't there at the moment that could be?
264.	P: They should do for younger people not so much me but for younger people they react better to more interactive sessions so me and S do what we're doing just now just like speaking but when I was eight years old if you tried to get me to sit in a chair and speak to somebody I probably wouldn't of been as receptive so if you'd given, like, you do things like games online maybe like that are designed to start like topics of discussion you might get more out of somebody and little things that trigger memories but just talking doesn't always trigger memories but maybe interactive like games and things online for younger people could be really handy.
265.	H: Okay so it's something about the interactivity that can be helpful for people?
266.	P: Well when I was on JSA at the Jobcentre they had a, it was a website through the Jobcentre and it was a guy and he was away for a job interview, you chose what clothes he wore, you chose like the answers he gave to the interviewer and the, it taught you how to act in a job interview and instead of someone sitting there telling you how to do it you were physically doing it for somebody else, it was all interactive and I just remember it was fun, I mean yeah, I was like 18 but it was more fun to see what the right answers were because there were some questions that throw you like,

	what are your weaknesses? And you're like, what? But because it was all done interactively you could sit back and remember what you did on the computer but you're not going to remember if you're sitting down having a dull conversation are going to really remember?
267.	H: Okay so maybe when you said earlier that it would be good to have a, a website specific for depression, making that interactive then?
268.	P: Yeah
269.	H: Would be something that you would recommend?
270.	P: Yeah, well on mypatient.co.uk they have like a scale and it's 1 to 10 and they ask you daily to rate yourself sort of thing and things like that it can give you a record as well of how you're feeling on those days they could do something like that and they should maybe have things like if you're at a say one's the worst, if you're at a one they should then give you more information and might like links to other sites that might be helpful and when you're at a ten they should have things like why are you so happy today? And you could write down why you're happy and then when you look back you can go back and be like, oh I was really happy because I went for a walk to the beach today, so maybe I should go for a walk to the beach today because I'm at a number 4 instead of a ten.
271.	H: Okay, and having that like in a journal like remembering that as well so you could go back to it?
272.	P: Yeah, it'll show you what makes you happy because when you're depressed you forget that you're every happy, like I'm always saying to my boyfriend I'm never happy I'm so miserable and then he's having to say to me but what about the time we went to Cadona's, what about the time you took, I babysit an eight year old girl called C, what happened, what about the time you took C to Dundee, it would be good to actually not have to be reminded by him.
273.	H: So either an app or a website that does that instead of your boyfriend?
274.	P: Yeah because he'll forget things as well and it'll be good, like, I've tried to keep diaries, I'm told to keep diaries and it just doesn't work for me I get bored and I forget.
275.	H: Like a written diary?
276.	P: Yeah, my hands get sore. I like to type things up.
277.	H: Okay so if you had like an app or website that sent you an alert every day to remind you to do an entry that might be more useful for you?
278.	P: Yeah, and like having a little like your smiley rates, that used to be really helpful when you have to rate yourself because you really have to think about and then like you have to, if you have to explain why I'm feeling that way then you could, it would help you understand yourself better.

279.	H: Okay that's good, that's useful, very useful, anything else or have I exhausted your suggestion?
280.	P: I can't think of anything, I'm not very good with technology.
281.	H: No, I think you've given me a lot of good information today.
282.	P: That's good.
283.	H: Yeah, totally. Well we're coming to the end now unless there's anything else that you think would be good for me to know?
284.	P: I'm trying to think. Don't know I think that you should, people should definitely look into educating younger people with mental illness on using the Internet to aid their, their recovery because just now you're giving medication, you're giving therapy, but when you go home what's there for you? And I don't like being medicated, I get really sleepy and I like to stay awake, I like to enjoy my day, you know, I might be depressed but it doesn't mean I don't like the simple things such as sitting outside and enjoying like that it's a nice day. But I'm too tired.
285.	H: Right so you feel technology can fill up that gap to help them manage?
286.	P: I don't think medication works, that's a personal opinion I think that well with depression it's a low serotonin levels so you might need a little boost but I think that just, there's people on that forum who have been on anti-depressants for thirteen years, they shouldn't be on them for thirteen years, there should be things to help them and online seems to be the way forward, so they should, people should just be more educated, there should be more out there for any sort of illness but for specifically for me mental illness I would love there to be, like this forums great but it's not what I want.
287.	H: What do you want?
288.	P: Ideally a website like run by professionals where you can as I said, write down how you're feeling, so you can look back on it, it records how you're feeling, even things like recording at what time you're posting at cause if you're posting, if you look back on say a month, you look back on your last month, you might notice that every day at about 10 o'clock at night your moods at four. You can look back on that and be like right well, we need to change that, but you can't do that just now, you can't do like, I can't record to myself, when I'm getting in a bad mood my mind goes and I don't remember anything so I don't remember if I was mad at 10 o'clock or if it was 11 o'clock if you're typing that up there's a, it's a log and it can keep everything, and yeah, it might take a lot of work to make a website like that but you know it's going to help people to look back on themselves and there's nobody that understands yourself better than yourself. That's what Feud taught, you know, you have to learn for yourself. But how do you do that, there's nothing there just now.
289.	H: Okay, so that website would definitely help?
290.	P: I think so.

291.	H: If someone made it which is one of the reasons why I'm doing this research to find out what people want, you know.
292.	P: It would be good for younger people because it's interactive, it'd be good for my age I'm twenties, thirties maybe to learn more about yourself and then maybe for the older people who are lonely their partners have passed you know they're in their sixties, seventies, eighties, they can use that just as general chat maybe have an instant messenger where you can connect to somebody else who's likes of say, I'm feeling a bit down, I could maybe go on there and it will just connect me to some random person somewhere who's maybe feeling the same and just somebody to chat with then you might make a new friend somebody who's feeling lonely in another place might get their, get some communication for the day, younger people get their interactive, gets their brains working and there's a log there to remember how you're feeling.
293.	H: And do you feel if your, like if S would she be allowed to have access to what you said?
294.	P: Well that would be brilliant wouldn't it because there's things that happen with me like if me and my boyfriend fall out it might be something really little but in that moment that could put me at an eight or a nine, two weeks later when I'm seeing S I could totally forget that we even fell out but then if I had that documented and S goes in and looks at it she can say so what happened and I can say oh this happened and then we can work through it and then the next time there's an argument I have new techniques to get over it and I might not be at a low level I might be able to deal with it at a happy level.
295.	H: Okay so if you have like a digital journal of what you and your worker S work on and talk about so you've got that and then she can go online and see what's been going on in your daily life?
296.	P: And then she can take a note of it and we can chat about it.
297.	H: So yeah, so you're coming at things from both sides.
298.	P: She could even write on it maybe, like so say like she was able to get on it, she could, or even things like put a highlighter on it, she can highlight online what she wants to talk about, take her tablet in and just go through it and there it is right there.
299.	H: Sounds great.
300.	P: It does doesn't it, we'll have to invent this.
301.	H: Yeah okay, well thanks very much for your time today.
302.	P: That's fine.
303.	H: Any questions after talking about technology?
304.	P: I don't think so.

| 305. | H: No, okay. |

Appendix 7: Example of coding framework

	Analysis of Candy's data
1.	**Centrality through interconnectivity**
2.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone. I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop and I do have a tablet and my iPod, everything's technology these days for me. So I, that's what I use regularly.
3.	Well I don't have a house phone so that's my only sort of contacts, with no Wifi as well, so my only contact with the outside world is my phone and then because I do have depression, I have anxiety too, I struggle to leave the house, so the only way I would be talking to people on a daily basis is through my phone.
4.	Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
5.	Yeah, I don't think I would manage if I didn't have daily contact with people. I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody. And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
6.	Well I'm not very safe in my own life like out-with technology I'm not very safe I self-harm, my depression leads to suicidal thoughts so if you're going to use something like a phone or that you need to be able to control how safe you are there because a lot of bad things happen.
7.	Just know you're not the only one in the world that can't sleep. You know there's people by the way, there's all different reasons they're awake obviously but it's nice and like you can just even if there's nobody really that you want to speak to you can just go to a nosey on people's Facebook's go through your own photos because I really like going to my photos so I would go through and look at my old photos and now that I have that, look back at my memories on Facebook so every day I can go and have a look at what I was doing a year ago today, two years, three years, sometimes it's good because you can see that you were having a massive breakdown a year ago and today you are feeling fine or maybe three years ago you were doing something you really enjoyed so you can think to yourself well, maybe I'll try and do that again like go to Codona's, why don't I try and get that arranged because obviously I had a ball three years ago today.
8.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.

9.	Yeah, no I, it's just key to my depression, I mean people don't really explore that sort of side of media it's always what's the negatives, that gets me through a lot. So I think that that's the key to it for me to get better, is to have my constant contact with people. You know, forcing me to go outside and see my friends is going to make me a lot worse and I'm probably going to cry and get really frustrated and upset and my friends aren't going to understand and they're going to get mad at me at least if I've got my phone I can send them a text to let them know I might not actually be physically with them but it doesn't mean I'm not still their friends and keeps me in touch with them all. When I went away to Edinburgh recently I was still texting everybody letting them know what was going on and I went to the zoo and I sent everyone pictures of the pandas and stuff just to let them know that they're not forgotten because I'm not there.
10.	I would have nothing. I would have no contact with the outside world. If I was having a bad bought of anxiety I could be in my house for a week, two weeks without leaving. How could I, if I didn't have my phone how would I have any contact with anybody. Cause people don't just come to the house, my house has a buzzer so I, if I can't get out my bed I can't let anybody in the house and then because I'm not leaving the house the house gets in a big mess so I don't want anybody in the house anyway. So if I'm having a bad day my house is a mess, the thought of having to go and get out my bed to tidy up would be really distressing. At least I can just go and text people now and I can still speak to people without having to put myself under any extra stress.
11.	I only really speak to people through my phone. There's a lot of friends I have that I'll speak quite a lot on my phone but I won't go out of my way to do anything with them which is really bad but and then I've got friends from like England who I couldn't just go and say hi to who get it like S who understands.
12.	Well when I was on JSA at the Jobcentre they had a, it was a website through the Jobcentre and it was a guy and he was away for a job interview, you chose what clothes he wore, you chose like the answers he gave to the interviewer and the, it taught you how to act in a job interview and instead of someone sitting there telling you how to do it you were physically doing it for somebody else, it was all interactive and I just remember it was fun, I mean yeah, I was like 18 but it was more fun to see what the right answers were because there were some questions that throw you like, what are your weaknesses? And you're like, what? But because it was all done interactively you could sit back and remember what you did on the computer but you're not going to remember if you're sitting down having a dull conversation are going to really remember?
13.	**Centrality through interconnectivity\Appurtenances of need**
14.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone. I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop and I do have a tablet and my iPod, everything's technology these days for me. So I, that's what I use regularly.
15.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment**
16.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone. I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop and I do

	have a tablet and my iPod, everything's technology these days for me. So I, that's what I use regularly.
17.	Yeah, I don't think I would manage if I didn't have daily contact with people. I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody. And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
18.	I only really speak to people through my phone. There's a lot of friends I have that I'll speak quite a lot on my phone but I won't go out of my way to do anything with them which is really bad but and then I've got friends from like England who I couldn't just go and say hi to who get it like S who understands.
19.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment\A part of life**
20.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone.
21.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment\A part of life\A Third Hand**
22.	Yes, it's my third hand.
23.	Yeah I'm never off that thing.
24.	I would go right out and buy a new one, I have the money. So…
25.	Yeah like I always have it. It's just instant as well not much these days you can get, if you're needing to speak to somebody you don't always get them straight away but you somehow need them straight away so at least having a phone there's always somebody you can speak to.
26.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment\A part of life\A Third Hand\A must have\Everything is technology these days for me**
27.	Everything's technology these days for me. So I, that's what I use regularly.
28.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment\A part of life\A Third Hand\Absolute reliance\Safety net\Smartphone always switched on**
29.	H: Okay so is your phone always switched on?
30.	P: Yeah
31.	Yeah, I'm better now because my boyfriend keeps me kind of grounded but when I was younger the worst thing that could happen is that phone would die, like it dies, if I go to Dundee shopping for the day I normally know it might die but it's not as big a deal as it could be but I try and keep it on, I don't know I just feel anxious if it's not on.

32.	**Centrality through interconnectivity\Appurtenances of need\Continuum of attachment\Peripherality\Purposeful non-use\Need to be uncontactable\Switches phone off sometimes**
33.	I turn it off if something is kicking off.
34.	Well this instance that I've been referring to was a friend's birthday party and she knew it was planned for her and so she asked if I was going and I said no because it was my two year anniversary with my partner so I says no I'm going away to Edinburgh. On her birthday party I texted her saying have a lovely day sorry I couldn't be there, she pretended like she had no idea what I was talking about which turned everyone completely against me and then so everyone's texting me you've ruined this birthday party, so I just turned my phone off.
35.	**Centrality through interconnectivity\Managing need**
36.	Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.
37.	And a lot of younger people don't have the money to top up their phones so you can get cheap tariffs where you get your unlimited texts and most people do have their unlimited texts now but not many people have minutes. So like my phone topped itself up today, I'm on a monthly almost like a contract but it's not a contract I'm on a, my phone's a pay and go but the website I use will top it up monthly so before today I had no more minutes I ran out of minutes I couldn't phone anybody so say I needed like a professional to speak to I could, if it was a charging number I couldn't phone them. I would have to, if I could just text somebody or even just text somebody saying I've got no more minutes I'm having a Breakdown could you phone me.
38.	**Centrality through interconnectivity\Managing need\The Digital Window**
39.	Well I don't have a house phone so that's my only sort of contacts, with no Wifi as well, so my only contact with the outside world is my phone and then because I do have depression, I have anxiety too, I struggle to leave the house, so the only way I would be talking to people on a daily basis is through my phone.
40.	Well I don't have a house phone so that's my only sort of contacts, with no Wifi as well, so my only contact with the outside world is my phone and then because I do have depression, I have anxiety too, I struggle to leave the house, so the only way I would be talking to people on a daily basis is through my phone.
41.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.
42.	**Centrality through interconnectivity/Managing need/The Digital Window/Being digitally disconnected/The patient perspective/Aspirational interactions with mental health services/Future functionality/Digital Service/Increased choice of communication options/A local website**

43.	Aye the NHS had a technology, I know they have a website for like, they have their own website but they should really have one designed for mental health and maybe have the websites on there and have them explained cause just now it's not easy finding them and like if you go and Google mental health help you can get Australian websites, American, you need one kind of local.
44.	H: Right okay so, a website that is easy to find?
45.	P: Mmhmm
46.	Ideally a website like run by professionals where you can as I said, write down how you're feeling, so you can look back on it, it records how you're feeling, even things like recording at what time you're posting at cause if you're posting, if you look back on say a month, you look back on your last month, you might notice that every day at about 10 o'clock at night your moods at four. You can look back on that and be like right well, we need to change that, but you can't do that just now, you can't do like, I can't record to myself, when I'm getting in a bad mood my mind goes and I don't remember anything so I don't remember if I was mad at 10 o'clock or if it was 11 o'clock if you're typing that up there's a, it's a log and it can keep everything, and yeah, it might take a lot of work to make a website like that but you know it's going to help people to look back on themselves and there's nobody that understands yourself better than yourself. That's what Feud taught, you know, you have to learn for yourself. But how do you do that, there's nothing there just now.
47.	H: Okay, so that website would definitely help?
48.	P: I think so.
49.	It would be good for younger people because it's interactive, it'd be good for my age I'm twenties, thirties maybe to learn more about yourself and then maybe for the older people who are lonely their partners have passed you know they're in their sixties, seventies, eighties, they can use that just as general chat maybe have an instant messenger where you can connect to somebody else who's likes of say, I'm feeling a bit down, I could maybe go on there and it will just connect me to some random person somewhere who's maybe feeling the same and just somebody to chat with then you might make a new friend somebody who's feeling lonely in another place might get their, get some communication for the day, younger people get their interactive, gets their brains working and there's a log there to remember how you're feeling.
50.	Well that would be brilliant wouldn't it because there's things that happen with me like if me and my boyfriend fall out it might be something really little but in that moment that could put me at an eight or a nine, two weeks later when I'm seeing S I could totally forget that we even fell out but then if I had that documented and S goes in and looks at it she can say so what happened and I can say oh this happened and then we can work through it and then the next time there's an argument I have new techniques to get over it and I might not be at a low level I might be able to deal with it at a happy level.
51.	And then she can take a note of it and we can chat about it.

52.	She could even write on it maybe, like so say like she was able to get on it, she could, or even things like put a highlighter on it, she can highlight online what she wants to talk about, take her tablet in and just go through it and there it is right there.
53.	It does doesn't it, we'll have to invent this.
54.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\A messaging service**
55.	Well it would be nice to get them face-to-face (laughs) but through, I don't know, it would be really handy, see what happens with S is I can just text S and that's instant and she'll reply so why can't you text, have like a texting service, do you know what I mean, some people don't like speaking on the phone, some people would rather sit there miserable than speak, some people rather text, so maybe having somebody to just on the other end of the phone to text. Would be handy.
56.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Digital record**
57.	H: We're coming to the end but in terms of working with your support workers and like S, do you, if you had the opportunity to work for example on a tablet and you were working on stuff together so you could take it away and have it there so you could flip back and see would that be helpful or?
58.	P: Yeah, yeah.
59.	Yeah she writes it all down and takes it away with her because she'll need to re-read it to see where we're going to start off the next time but it would be good if we both had a copy and like digitally is a lot well she could lose her bit of paper and that's a whole session and she does do that so that a whole session kind of gone but if it was, if you put it on like a tablet and save it well on my phone I have, we were talking about apps, I do have an app I totally forgot about and it's the, it's called OneNote but it's like Word and stuff so if I needing to say I was writing a letter, an email, I could just type it up there save it and go back to it later, that could be really handy for sessions because all she would need to do was type up what was being said, save it then send it to me and then that's us both got a copy.
60.	H: So having a like almost like a journal of your sessions together?
61.	P: Yeah
62.	Yeah, I would love to know lots and then if it was documented I could even always have like a piece of S with me, it sounds really silly but, like S, the thing she says if it is written down I could take that away and when I'm feeling down I could read it instead of having to go phone somebody I could maybe just read it and be like, exactly S said this it's only two weeks I'll be fine, but just now we don't have anything like that just now.
63.	Yeah, and like having a little like your smiley rates, that used to be really helpful when you have to rate yourself because you really have to think about and then like you have

	to, if you have to explain why I'm feeling that way then you could, it would help you understand yourself better.
64.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Digital record\Chart helpful activities**
65.	Yeah, well on mypatient.co.uk they have like a scale and it's 1 to 10 and they ask you daily to rate yourself sort of thing and things like that it can give you a record as well of how you're feeling on those days they could do something like that and they should maybe have things like if you're at a say one's the worst, if you're at a one they should then give you more information and might like links to other sites that might be helpful and when you're at a ten they should have things like why are you so happy today? And you could write down why you're happy and then when you look back you can go back and be like, oh I was really happy because I went for a walk to the beach today, so maybe I should go for a walk to the beach today because I'm at a number 4 instead of a ten.
66.	Yeah, it'll show you what makes you happy because when you're depressed you forget that you're every happy, like I'm always saying to my boyfriend I'm never happy I'm so miserable and then he's having to say to me but what about the time we went to Cadona's, what about the time you took, I babysit an eight year old girl called C, what happened, what about the time you took C to Dundee, it would be good to actually not have to be reminded by him.
67.	**Thematic coding framework\\Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Digital record\Resource to turn to when needed**
68.	Yeah, I would love to know lots and then if it was documented I could even always have like a piece of S with me, it sounds really silly but, like S, the thing she says if it is written down I could take that away and when I'm feeling down I could read it instead of having to go phone somebody I could maybe just read it and be like, exactly S said this it's only two weeks I'll be fine, but just now we don't have anything like that just now.
69.	Yeah, it would help a lot of people not just me. It's really handy to be able to look back, that's what I do I always, I'm always looking back to try and move forward. I need to deal with the past before I can go into the future. It would be a lot better if I could just like Facebook it documents everything I can re-read it, it would be good if you could do that for sessions.
70.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Digital record\View progress**
71.	Yeah, so if I was having a really, say today for instance, I'm in a fine mood which is great so if I wanted to make myself feel better I could go and look back on some sessions and think blooming heck I've came a long way, look how bad I was feeling that day and when I was fifteen I had a worker at Barnardo's and I would have loved to be able to read those sessions as well because she was brilliant, the woman I had was brilliant

	with me and some of her techniques I've now forgotten, because I'm twenty now that's five years ago, and my memory blanks things out now because of my depression.
72.	Yeah, well if I could read back to what my worker K had she had loads, she came away with all these phrases which were hilarious but were so meaningful and if she'd wrote all these down and I had a copy of them when I was feeling down I could remember what she would say and all her techniques. I could read, like I know when I was younger I was really really bad for depression and I'd love to be able to go back and see and say to myself you're obviously getting better you're not as bad anymore but I can't because it's not been documented.
73.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Online support**
74.	I don't think medication works, that's a personal opinion I think that well with depression it's a low serotonin levels so you might need a little boost but I think that just, there's people on that forum who have been on anti-depressants for thirteen years, they shouldn't be on them for thirteen years, there should be things to help them and online seems to be the way forward, so they should, people should just be more educated, there should be more out there for any sort of illness but for specifically for me mental illness I would love there to be, like this forums great but it's not what I want.
75.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future functionality\Digital Service\Increased choice of communication options\Videoconferencing**
76.	It would be good to have somebody to be able to, that would be good having a face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they want to be there. So I think like a video thing would be brilliant for mental health.
77.	Yeah I think that would be really good, I never thought about that before but I'm, that.
78.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Design**
79.	I'm trying to think. Don't know I think that you should, people should definitely look into educating younger people with mental illness on using the Internet to aid their, their recovery because just now you're giving medication, you're giving therapy, but when you go home what's there for you? And I don't like being medicated, I get really sleepy and I like to stay awake, I like to enjoy my day, you know, I might be depressed but it doesn't mean I don't like the simple things such as sitting outside and enjoying like that it's a nice day. But I'm too tired.
80.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Design\Interactivity**
81.	They should do for younger people not so much me but for younger people they react better to more interactive sessions so me and S do what we're doing just now just like

	speaking but when I was eight years old if you tried to get me to sit in a chair and speak to somebody I probably wouldn't of been as receptive so if you'd given, like, you do things like games online maybe like that are designed to start like topics of discussion you might get more out of somebody and little things that trigger memories but just talking doesn't always trigger memories but maybe interactive like games and things online for younger people could be really handy.
82.	Well when I was on JSA at the Jobcentre they had a, it was a website through the Jobcentre and it was a guy and he was away for a job interview, you chose what clothes he wore, you chose like the answers he gave to the interviewer and the, it taught you how to act in a job interview and instead of someone sitting there telling you how to do it you were physically doing it for somebody else, it was all interactive and I just remember it was fun, I mean yeah, I was like 18 but it was more fun to see what the right answers were because there were some questions that throw you like, what are your weaknesses? And you're like, what? But because it was all done interactively you could sit back and remember what you did on the computer but you're not going to remember if you're sitting down having a dull conversation are going to really remember?
83.	H: Okay so maybe when you said earlier that it would be good to have a, a website specific for depression, making that interactive then?
84.	P: Yeah
85.	Yeah, well on mypatient.co.uk they have like a scale and it's 1 to 10 and they ask you daily to rate yourself sort of thing and things like that it can give you a record as well of how you're feeling on those days they could do something like that and they should maybe have things like if you're at a say one's the worst, if you're at a one they should then give you more information and might like links to other sites that might be helpful and when you're at a ten they should have things like why are you so happy today? And you could write down why you're happy and then when you look back you can go back and be like, oh I was really happy because I went for a walk to the beach today, so maybe I should go for a walk to the beach today because I'm at a number 4 instead of a ten.
86.	Yeah because he'll forget things as well and it'll be good, like, I've tried to keep diaries, I'm told to keep diaries and it just doesn't work for me I get bored and I forget.
87.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Design\Interactivity\Twenty-four-seven**
88.	Mmhmm, that well people get more depressed when they're, when it's bedtime. It's all well and good having a phone line during the day, but during the day if someone's having a breakdown they're not going to phone a charity their probably going to phone their mum or their going to phone their friends, though what happens at night time when everyone's in bed, the whole world goes to sleep and you're still up really upset.
89.	If there's people awake.
90.	It would be good to have somebody to be able to, that would be good having a face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they

	want to be there. So I think like a video thing would be brilliant for mental health.
91.	H: Right and being able to have face-to-face time through the Internet with people that can help all through the day and night?
92.	P: Yeah
93.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Genuineness of professionals**
94.	Well yeah you hear, like even my friends if I'm having a breakdown, like 'oh well it's ok you'll be fine', they're not really bothered they want to get back to what they were doing but if you seen their face they would have to act a bit more sincere which would make you feel a bit better.
95.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Genuineness of professionals\Patients to be taken seriously, an equal**
96.	To be taken seriously first of all because health professionals they'll give you what you need, like there's your Citalopram now go away and don't kill yourself.
97.	You would want them to sit down with you and speak to you as a equal not talk down to you because they know better because they know more about the Internet because that's how I feel the doctors are as well with the pills.
98.	It would be good to have somebody to be able to, that would be good having a face-to-face. It's sometimes nice to just hear a voice but seeing a face, putting a face to the voice and seeing that when they're speaking to you they're not just twiddling their fingers a bit bored they're genuinely wanting to hear what your problems are and they want to be there. So I think like a video thing would be brilliant for mental health.
99.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Genuineness of professionals\Professionals support IT literacy, suggest websites, apps etc. to use**
100.	Probably, especially when I was younger, cause the Internet everyone uses the Internet like teenagers are obsessed with that so if they knew how to use it to its full advantage you know the Internet doesn't just end at Facebook but that's what teenagers think. Facebook and Google why if, when I was younger I should have used like ChildLine they have a, it's like Instant Messenger with a professional but you have to wait in a queue to speak to somebody but it's just like MSN, Facebook messenger you can speak to a professional over like just typing to them. If I knew back then when I was younger because I was self-harming since I was eight so I've went through this a long time I probably could have got a lot more help if I knew, if my parents didn't want any help they wanted to pretend I wasn't ill but I could have helped myself if I knew about that.
101.	I would definitely hear them out. I think it would be helpful more for the younger, well maybe even older, people that don't really understand the Internet, do you I probably would go cause I'm sitting here acting like I know it all but I don't, I've only scratched

	the surface of what could help me online. So yeah I think it would be helpful for anyone even if people just roll their eyes and think it's rubbish one day they might need, need that sort of support, it's instant and it's 24/7 online you don't get that over the phone from some charities or you can't, I can't speak to S (Mental Health Professional) at three in the morning when I'm having a breakdown.
102.	Yeah because it does get a bit confusing.
103.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Aspirational interactions with mental health services\Future usability\Genuineness of professionals\Professionals support IT literacy, suggest websites, apps etc. to use\To be knowledgeable**
104.	I'd want them to know what they're talking about, you know, it's easy enough to go on this website it's called Breathspace, well let me know what Breathingspace is, it's a charity, yeah well what does it do, you know, like, actually know what you're talking about cause sending me on a website I can get really confused. If the website is complicated I'm not very technical, I was never, when I was younger I didn't have a computer or games consoles that was my brother I was the one that was outside climbing up trees I had no idea about all that. So they would need to explain it and they could probably do with making, like say the NHS had a technology, I know they have a website for like, they have their own website but they should really have one designed for mental health and maybe have the websites on there and have them explained cause just now it's not easy finding them and like if you go and Google mental health help you can get Australian websites, American, you need one kind of local.
105.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Current interaction with mental health services\Communication with Services through mICT\Contacts health professional for support**
106.	And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
107.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Current interaction with mental health services\Communication with Services through mICT\Contacts health professional for support\Contacts NHS 24**
108.	And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
109.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Health inequalities\Cost and affordability**
110.	It's expensive, so if my phone breaks, I'm on ESA for disability because of my depression and anxiety so I don't get that much money, well I do now I've got quite, they give, they've put my money up now because my depression's so bad they've given me extra support but when I first moved out I just picked up my bags and walked out one day because I couldn't handle living with my mum any more. I was given a flat with no carpet, no oven, no nothing so if my phone broke as well when I had nothing anyone I just don't know, I probably, this sounds ridiculous but I probably in that frame of mind would have committed suicide. Because I had nothing else, everything I didn't,

	I couldn't eat, I had to live off microwave nuggets, it was disgusting. I had no carpets so I was cold all the time, didn't have sofas, I had nothing but I had my phone.
111.	And a lot of younger people don't have the money to top up their phones so you can get cheap tariffs where you get your unlimited texts and most people do have their unlimited texts now but not many people have minutes. So like my phone topped itself up today, I'm on a monthly almost like a contract but it's not a contract I'm on a, my phone's a pay and go but the website I use will top it up monthly so before today I had no more minutes I ran out of minutes I couldn't phone anybody so say I needed like a professional to speak to I could, if it was a charging number I couldn't phone them. I would have to, if I could just text somebody or even just text somebody saying I've got no more minutes I'm having a Breakdown could you phone me.
112.	And it's cheaper to send a text, you're what? I think you're about twelve pence to send a text nowadays but you're about a pound a minute, something ridiculous like that, and some of these numbers are 0845 and my phone doesn't even let me phone them.
113.	H: Okay so cost comes into it then?
114.	P: Mmhmm
115.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Health inequalities\Socio-economic effects on mICT use**
116.	And a lot of younger people don't have the money to top up their phones so you can get cheap tariffs where you get your unlimited texts and most people do have their unlimited texts now but not many people have minutes. So like my phone topped itself up today, I'm on a monthly almost like a contract but it's not a contract I'm on a, my phone's a pay and go but the website I use will top it up monthly so before today I had no more minutes I ran out of minutes I couldn't phone anybody so say I needed like a professional to speak to I could, if it was a charging number I couldn't phone them. I would have to, if I could just text somebody or even just text somebody saying I've got no more minutes I'm having a Breakdown could you phone me.
117.	H: Okay, so, younger people are more likely to have free texts than money to call people?
118.	P: Yeah, mmhmm.
119.	And it's cheaper to send a text, you're what? I think you're about twelve pence to send a text nowadays but you're about a pound a minute, something ridiculous like that, and some of these numbers are 0845 and my phone doesn't even let me phone them.
120.	Well just reading, like, follow celebrities see what they're up to. Kind of boring but it's like, almost like having a magazine isn't it, you can read what they're up to without having to go and spend all your money on buying a magazine.
121.	**Centrality through interconnectivity\Managing need\The Digital Window\Being digitally disconnected\The patient perspective\Health inequalities\Socio-economic effects on mICT use\Meeting social needs at low cost**
122.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone.

123.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\A safe space\Facilitates sanctuary\Finding breathing space\A chance to reflect**
124.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.
125.	Yeah and that's really helpful if you're feeling really down about yourself and then somethings actually saying actually do you know what you've done really well. You feel a little bit better and maybe the bad thoughts will go away for a while.
126.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\A safe space\Key to recovery**
127.	Yeah, no I, it's just key to my depression, I mean people don't really explore that sort of side of media it's always what's the negatives, that gets me through a lot. So I think that that's the key to it for me to get better, is to have my constant contact with people.
128.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\A safe space\Key to recovery\Further education**
129.	That's opening a lot more doors for me because I would still get the qualifications without having to cause myself a great deal more anxiety. And then I'd fail if I have to go, if I had to travel I'd fail my course because I can't always make it in because my anxiety is too bad and not many lecturers are like, oh that's fine yeah anxieties playing up, they're just like, get over it.
130.	H: Okay so using mobile technology can open doors for you and help you keep well and help you get better if you're having a bad day?
131.	P: Yeah
132.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\Choice and control \Managing communication\mICTs give people options\Mode of expression\Phone-calls can be challenging**
133.	When I was younger that was me I didn't like phone-calls. Having moved into my own flat I don't have a choice, the council are always going to phone and people are always phoning you but when I was younger I would not answer a phone-call I would just text. If I had a random number phone me I would text them back saying who's this I wouldn't answer my phone.
134.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\Choice and control \Security**
135.	It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.

136.	Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it.
137.	H: Right so it sounds like having control I mean is there, is safety then important for you?
138.	P: Yeah
139.	Well I'm not very safe in my own life like out-with technology I'm not very safe I self-harm, my depression leads to suicidal thoughts so if you're going to use something like a phone or that you need to be able to control how safe you are there because a lot of bad things happen.
140.	Like even just people, people like to see people suffer. You get those trolls who like to, well I got a text and it was 22 pages from a boy telling me to commit suicide to jump off, to take a, a long jump off a short bridge, one of those phrases, and all these nasty things and if that was said face-to-face that could have had a lot of a worse reaction but it's a lot safer on the phone because all you have to do is delete the message and block them.
141.	And it helps because I had to get the police involved if it was said face-to-face it was one person's word against the other's but I had it in physical, in my hand I could physically show them the text so the he got, obviously got in a lot of bother for that so I think phones are a lot safer.
142.	I was I don't have to hear, I was in Edinburgh trying to have a great day with my boyfriend going to the zoo, deep-sea world, having a ball, just turned it off for half-an-hour until I was in a better frame of mind to deal with the texts. Cause I could've, I did just block their numbers but right in that moment you have to open the text to block the numbers so you know what's been said. So I turned it off, had a ball looking at the monkeys and the pandas and what-not, when I felt better I turned it back on and just blocked it all.
143.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\Choice and control \Security\mICTs provide a sense of control**
144.	I prefer it because I, like that girl, S is her name. If I'd met her in real life, she lives in England, if she came to visit who knows what could happen because two people with a severe mental illness if they, what if they locked heads, something could really go down but at least if we like had a disagreement on Skype, shut the laptop and it's gone.
145.	Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it.
146.	But you can't do that in real life you have to deal with it there and then, you can't just kinda, you can try and walk away but if you try and walk from by boyfriend he will follow you so that causes me a lot more stress.
147.	H: So it sounds like you're in control?

148.	P: Yeah
149.	Yeah when you have depression and anxiety you're not in control of very much at all you're not in control of your moods, you're not in control of like I never feel happy, at least I can control something, you know you can, if someone's upsetting you, put them to the side and forget about it.
150.	Yeah, you know what my phone is brilliant. I've had an incident recently where a lot of my friends had turned against me and this has happened before, this happened a year ago, and a year ago I was a bit silly and I didn't use my phone to its full advantage and I just let them keep doing it. They started it again this year, they started a few days ago, I blocked all their numbers.
151.	It was, this is the downside of probably having the media with depression I was getting Facebook messages constantly I was getting text messages, I actually got threatened in the street and stuff and it sort of, it was kind of, it was all done through phones because this, it was a girls birthday party and that was in Aberdeen and I was here so we couldn't have a physical altercation so it was all done through Facebook and text messages but with my phone you can block numbers so I literally blocked every number that could message me, that would message me or that had messaged me that I didn't want to hear from and I've had no bother I've got on with my day absolutely fine.
152.	Well I'm not very safe in my own life like out-with technology I'm not very safe I self-harm, my depression leads to suicidal thoughts so if you're going to use something like a phone or that you need to be able to control how safe you are there because a lot of bad things happen.
153.	I was I don't have to hear, I was in Edinburgh trying to have a great day with my boyfriend going to the zoo, deep-sea world, having a ball, just turned it off for half-an-hour until I was in a better frame of mind to deal with the texts. Cause I could've, I did just block their numbers but right in that moment you have to open the text to block the numbers so you know what's been said. So I turned it off, had a ball looking at the monkeys and the pandas and what-not, when I felt better I turned it back on and just blocked it all.
154.	Yeah, I don't have to listen to them giving me abuse I can just turn the phone off.
155.	Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.
156.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\Choice and control \Security\mICTs provide a sense of control\Blocking numbers of people harassing her**
157.	Well I've started self-harming again because of this incident and I've had to phone the NHS so it has affected me but it would have affected me a hell of a lot more if I couldn't block numbers so like the smartphones these days cause before you wouldn't be able to do very much on your phone now you can, one push of a button and they're gone.
158.	H: Okay, so you've been in control of the situation by blocking those numbers?
159.	P: Yeah

160.	Like even just people, people like to see people suffer. You get those trolls who like to, well I got a text and it was 22 pages from a boy telling me to commit suicide to jump off, to take a, a long jump off a short bridge, one of those phrases, and all these nasty things and if that was said face-to-face that could have had a lot of a worse reaction but it's a lot safer on the phone because all you have to do is delete the message and block them.
161.	And it helps because I had to get the police involved if it was said face-to-face it was one person's word against the other's but I had it in physical, in my hand I could physically show them the text so the he got, obviously got in a lot of bother for that so I think phones are a lot safer.
162.	**Centrality through interconnectivity\Managing need\The Digital Window\Digital filter\Choice and control \Security\Offer choice**
163.	Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it.
164.	But you can't do that in real life you have to deal with it there and then, you can't just kinda, you can try and walk away but if you try and walk from by boyfriend he will follow you so that causes me a lot more stress.
165.	I was I don't have to hear, I was in Edinburgh trying to have a great day with my boyfriend going to the zoo, deep-sea world, having a ball, just turned it off for half-an-hour until I was in a better frame of mind to deal with the texts. Cause I could've, I did just block their numbers but right in that moment you have to open the text to block the numbers so you know what's been said. So I turned it off, had a ball looking at the monkeys and the pandas and what-not, when I felt better I turned it back on and just blocked it all.
166.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Accessibility**
167.	So having something to hand instead of getting up and stressing myself out so I can just grab the tablet, grab the iPod, grab my phone.
168.	Yeah it's in my bag right now.
169.	Yeah, it's usually sits in my bedside table at bedtime, in a pocket, I can leave it one room and go into another and I'll just put it on volume so if I'm needed I ca run back. I do lose it more than I have it, it's always going missing and my cat tries to eat it so he takes it away but it's always there, I can always grab it.
170.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Accessibility\Access to information**
171.	Yeah it's in my bag right now.
172.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Accessibility\Accessing media and entertainment\Social media**

173.	Just know you're not the only one in the world that can't sleep. You know there's people by the way, there's all different reasons they're awake obviously but it's nice and like you can just even if there's nobody really that you want to speak to you can just go to a nosey on people's Facebook's go through your own photos because I really like going to my photos so I would go through and look at my old photos and now that I have that, look back at my memories on Facebook so every day I can go and have a look at what I was doing a year ago today, two years, three years, sometimes it's good because you can see that you were having a massive breakdown a year ago and today you are feeling fine or maybe three years ago you were doing something you really enjoyed so you can think to yourself well, maybe I'll try and do that again like go to Codona's, why don't I try and get that arranged because obviously I had a ball three years ago today.
174.	Not regularly. I've got my, I've got a Twitter account.
175.	Well just reading, like, follow celebrities see what they're up to. Kind of boring but it's like, almost like having a magazine isn't it, you can read what they're up to without having to go and spend all your money on buying a magazine.
176.	Yeah Facebook, trying to think, I don't really go onto anything else. I went on the MS society just to try and understand my dad's behaviour towards me but that didn't really help so I don't really use that any more.
177.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Accessibility\Accessing media and entertainment\Social media\Google**
178.	I'm always on Google. Any time I have a question or something pops in my head I'm always on Google, I like to learn.
179.	Yeah well I can't go back to college. I really enjoyed college, I love studying, I love learning so I'm even thinking of taking up an Open University course at home because I really don't think I can manage. So it would be good to be able to still do what I love which was I love studying I really want to be a social worker and I tried really hard and I got all A's so I'd love to be able to continue that but not have to travel to Aberdeen.
180.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Accessibility\Portability**
181.	So having something to hand instead of getting up and stressing myself out so I can just grab the tablet, grab the iPod, grab my phone.
182.	Yeah, yeah well if I'm up for going from one room to the other I can take that with me and there's no sort of, like you can't take your Xbox for a walk with you can you so you can take the phone or the iPod or the tablet.
183.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Connectivity**
184.	It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the

	house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.
185.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Functionality\Connectivity\Instant communication**
186.	So, I have that instant sort of communication if I need it.
187.	Yeah like I always have it. It's just instant as well not much these days you can get, if you're needing to speak to somebody you don't always get them straight away but you somehow need them straight away so at least having a phone there's always somebody you can speak to.
188.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Usability\Convenience**
189.	So having something to hand instead of getting up and stressing myself out so I can just grab the tablet, grab the iPod, grab my phone.
190.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Usability\Convenience\Face-to-face**
191.	It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.
192.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Benefits of using mICTs\Usability\Ease of use\All-in-one\mICT use in the home**
193.	It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.
194.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Functionality issues\Coverage and connectivity**
195.	Yeah my Internet because I don't have Wifi my phone network's really rubbish and the Internet only really works at night time. I don't know why but from about eight o'clock onwards my Internet'll be fine but I can use it out of the house like just now I could probably get on it. I'm mostly at night because I'll be in my house at night.
196.	Well if your Internet doesn't work and you're really needing to, if the networks down and you're needing to get on something
197.	I've got a depression forum I use regularly if I couldn't get on that if I needed it that could cause a lot of stress and then thinking about, this is me personally but if my phone, say my signals dodgy or well my mum's signal was down the other day and every time I tried to send a message it said message failed so I thought that was my phone so I got

	myself up to a 10 out of 10 for stress thinking my phone was broken but it wasn't. So technology's not always reliable my charger doesn't always work as well.
198.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Functionality issues\Reliability issues**
199.	I've got a depression forum I use regularly if I couldn't get on that if I needed it that could cause a lot of stress and then thinking about, this is me personally but if my phone, say my signals dodgy or well my mum's signal was down the other day and every time I tried to send a message it said message failed so I thought that was my phone so I got myself up to a 10 out of 10 for stress thinking my phone was broken but it wasn't. So technology's not always reliable my charger doesn't always work as well.
200.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Usability issues\Online dangers\Inappropriate use, attacked online\Cyber bullying**
201.	It was, this is the downside of probably having the media with depression I was getting Facebook messages constantly I was getting text messages, I actually got threatened in the street and stuff and it sort of, it was kind of, it was all done through phones because this, it was a girls birthday party and that was in Aberdeen and I was here so we couldn't have a physical altercation so it was all done through Facebook and text messages but with my phone you can block numbers so I literally blocked every number that could message me, that would message me or that had messaged me that I didn't want to hear from and I've had no bother I've got on with my day absolutely fine.
202.	Well I've started self-harming again because of this incident and I've had to phone the NHS so it has affected me but it would have affected me a hell of a lot more if I couldn't block numbers so like the smartphones these days cause before you wouldn't be able to do very much on your phone now you can, one push of a button and they're gone.
203.	Well this instance that I've been referring to was a friend's birthday party and she knew it was planned for her and so she asked if I was going and I said no because it was my two year anniversary with my partner so I says no I'm going away to Edinburgh. On her birthday party I texted her saying have a lovely day sorry I couldn't be there, she pretended like she had no idea what I was talking about which turned everyone completely against me and then so everyone's texting me you've ruined this birthday party, so I just turned my phone off.
204.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Usability issues\Online dangers\Inappropriate use, attacked online\mICTs open to abuse**
205.	Yeah, media if used correctly and maturely, not by 14 year old children that are using it to cause fights can probably help with anything but its abused.
206.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Usability issues\Online dangers\Inappropriate use, attacked online\Online is a war**
207.	People, it's like a war, like on Facebook if you only get four likes on a picture you're obviously not very pretty but some people are getting like 200 hundred likes on a photo. When you're younger that's the end all and be all, people would commit suicide over

	thinking that people didn't like them but then people don't realise that these people that are getting two-hundred likes on a photo have about two-thousand friends on Facebook. So for me I might only get like 5 or 6 likes on a photo I've only got 200 friends on Facebook but if I've used, if it's not used very well, children use it like, take the mick out of it like they go onto these askFM sites don't use these sites if you're not in the right frame of mind you know it's just common sense but children at that age think they're invincible.
208.	It's an anonymous, you can ask questions anonymously and it led to the suicide of a 15 year old girl in England about a year ago. People were constantly calling her names on it and telling her she should go and commit suicide so she did it. And people are saying ban it, ban that website its bad, don't ban the website ban our children if they can't use it appropriately.
209.	H: So when you were younger in your early teens, you might not of been using it the most responsible way
210.	P: No
211.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Usability issues\Online dangers\Inappropriate use, attacked online\Trolling (2)**
212.	Like even just people, people like to see people suffer. You get those trolls who like to, well I got a text and it was 22 pages from a boy telling me to commit suicide to jump off, to take a, a long jump off a short bridge, one of those phrases, and all these nasty things and if that was said face-to-face that could have had a lot of a worse reaction but it's a lot safer on the phone because all you have to do is delete the message and block them.
213.	Well this instance that I've been referring to was a friend's birthday party and she knew it was planned for her and so she asked if I was going and I said no because it was my two year anniversary with my partner so I says no I'm going away to Edinburgh. On her birthday party I texted her saying have a lovely day sorry I couldn't be there, she pretended like she had no idea what I was talking about which turned everyone completely against me and then so everyone's texting me you've ruined this birthday party, so I just turned my phone off.
214.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Challenges of using mICTs\Usability issues\Online dangers\Navigating alone**
215.	No I've had to go through a lot of the, when you're younger and you're using the Internet you think you're invincible and I did that I was thirteen and I was on chatrooms and grown men were doing things to themselves and I was only a 13 year old girl and like that was bad use of technology because I was abusing my parents trust with it and I was, like there was things that totally influenced how I grew up was like what people were telling me when I was younger online.
216.	No, people don't, at school you're not, I remember being in primary 2 or 3 when the computers were just being put into schools you were never taught how to use it. You were given like paint, you know like the paint thing, it's like a, one of the like built in settings, like a game or something but you just you can paint and they ley you do your

	painting and they never really taught you and then in computing you were taught how to do coding and that's about it you were taught how to use the codes and you were never taught how to use the Internet safely and my parents who, well my dad was born in the sixties, mum in the seventies, they didn't really have much of a clue, they rely on me and my brother to teach them so you have to learn for yourself really and if you're lucky you won't by your experiences cause too much grief but that's probably why people are so against using the Internet to help with mental illness as such because it can lead to bad things like bad thoughts and suicide. But you have to learn for yourself I think I don't think people can really teach you they try but you're not going to listen.
217.	Like some teachers probably do try, I've never experienced a teacher who's told you not to. You get pop-ups on the computer that tell you have to use safe Internet or what-not.
218.	Myself. I did a, I was at college and I studied, I wanted to be a social worker so I was doing social care and so the use of like the helpful websites came from that because we had to study them so you had to like be a social worker you had to write like a whole like, it was like a whole report on how you would approach a depressed teenager so you had to study all these sites that's how I learned about everything was through my own research for reports and stuff for my college.
219.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Transition of technology\Adopting and embedding mICTs\Order of preference**
220.	My phone would be first, laptop probably next cause if I do have Internet I sometimes Skype my friends' as well so laptop and then tablet.
221.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of laptop**
222.	I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop
223.	My laptop is Asus.
224.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of laptop\Mainly used when Internet access was available**
225.	That's more like, well I've just last year stopped going to college I did a, I've been there. Had been there for two years so that was for like coursework. I did, when I had Internet at my mum's house we'd use that for Facebook and what not but now it's just more for like applying for jobs because before I was on jobseekers allowance when I left college so I would use it for like looking for jobs and sometimes a nosey on Facebook, listening to some music, don't really use it that much.
226.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of laptop\Skype with friends**
227.	Yeah if I'm at my mum's house I can use it I was using it, there was a girl I met from England and she had depression too but she was a lot worse than me and it helped to

	see somebody like what I could be if I kept going off the, in a bit of a crazy spiel thing, I could see that I could end up where she was and it kinda helped to talk to somebody who got it because not many people get it. So I used to Skype her a lot.
228.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone**
229.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone.
230.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\Access the Internet**
231.	H: So you use it to get onto the Internet?
232.	P: Yeah
233.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\Apps\Instant messaging**
234.	I've got WhatsApp so I can send pictures and because I can't do it with my Messenger, my SMS, I can't send pictures so I can use my phone now, like send pictures, like the cat, I've got a kitten and a cat so I'll go and send my mum stuff and they'll send pictures back and just, something to make my day really.
235.	Just WhatsApp I think.
236.	Not apps no, just WhatsApp.
237.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\In-built functions\As an alarm**
238.	Yeah, yeah, no I do use it, I use my alarm, this morning for instance I had to get up at half ten, that's not, well, if I don't get to sleep until three in the morning half-ten can be quite early so I make sure I'm up.
239.	I also babysit my partner's got two disabled cousins who need a lot of work and I offer to help one day a week to look after the kids so I need to have an alarm to make sure I'm up and ready because that, the little boy gets home from school, if I'm not there then no one's there.
240.	My partner has two jobs so he needs to get up at two in the morning so if he's staying at my house there needs to be an alarm on or he will not get up.
241.	I use the calendar to remind me because my calendar is an alarm as well so my calendar will set an alarm off on that day to let me know what's happening, so like today this meeting, had to make sure I had an alarm so I wouldn't forget, have my alarm on every second Tuesday for S or I will forget, my minds a bit, well my minds always going so I'll forget the little things.

242.	Yeah so I need my alarms and my calendar.
243.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\In-built functions\Calendar**
244.	I use the calendar to remind me because my calendar is an alarm as well so my calendar will set an alarm off on that day to let me know what's happening, so like today this meeting, had to make sure I had an alarm so I wouldn't forget, have my alarm on every second Tuesday for S or I will forget, my minds a bit, well my minds always going so I'll forget the little things.
245.	Yeah so I need my alarms and my calendar.
246.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\In-built functions\Telephone**
247.	My phoning my mum, cause it's like the way I can really get hold of her, I'll phone her.
248.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\In-built functions\Texting**
249.	Well I can text people, I do, even just little, like text
250.	When I was younger that was me I didn't like phone-calls. Having moved into my own flat I don't have a choice, the council are always going to phone and people are always phoning you but when I was younger I would not answer a phone-call I would just text. If I had a random number phone me I would text them back saying who's this I wouldn't answer my phone.
251.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of smartphone\Type of smartphone**
252.	My phone's a Nokia Lumia
253.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of tablet**
254.	I do have a tablet and my iPod.
255.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of tablet\Gaming and entertainment**

256.	Games, that's about it, I don't really use it very much but I've got my games on it, got my Facebook, can't really message anyone it's not like my phone I don't get the option to message, I use it for emails sometimes, I need to email when I was applying for jobs I'd use that to email employers.
257.	Just like your usual, your tempo running a friend, just what every everyone is playing. I'm not very good at games so I just download what everyone's on about and see if I can play it to be honest.
258.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of tablet\Internet access\Email**
259.	Games, that's about it, I don't really use it very much but I've got my games on it, got my Facebook, can't really message anyone it's not like my phone I don't get the option to message, I use it for emails sometimes, I need to email when I was applying for jobs I'd use that to email employers.
260.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of tablet\Internet access\Facebook**
261.	That's just Facebook if I have Internet, it's well sort of it's weird but sometimes my, my tablet will connect to Internet from nowhere. My flat so sometimes I'll get Wifi for about half an hour for no reason, it's not connected to anything, so I sits and lets me on Facebook and that so that's more just a nosey on Facebook I don't really use it to contact anybody, it's just there.
262.	Games, that's about it, I don't really use it very much but I've got my games on it, got my Facebook, can't really message anyone it's not like my phone I don't get the option to message, I use it for emails sometimes, I need to email when I was applying for jobs I'd use that to email employers.
263.	**Centrality through interconnectivity\Managing need\The Digital Window\Navigating and negotiating\Influencing behaviours and experiences\Types of mICTs and use\Uses of tablet\Type of tablet**
264.	Tablet is a Google Nexus
265.	**Centrality through interconnectivity\Outsourcing need**
266.	Yeah, the silence, when I'm having, when I'm having a really bad bought of depression I'm prone to self-harm. And instead of going for a piece of glass it would make me go for my tablet or my iPod or even my phone you know, play a game or my old photos it kinda stops me cause then you can't focus on, if I can't really focus, when I'm in that mind frame I can only focus on one thing at a time usually it's get the glass cut your arm, if I'm on the tablet I'm only focusing on tablet cause my mind just set, it doesn't work very well my minds not, I'm not at the right place at that time so it's easier to just look at one thing so my tablet will completely take away the need for glass cause I'm not.
267.	It keeps you safe as well because I spoke to S about the possibility of meeting her and she was like well you don't know how bad this girl has it because she can just tell you how much she wants you to know so, videochat is a lot safer and I can do that from the house so if I'm having anxiety I can still talk to somebody face-to-face without having to leave the house.

268.	Well you can just, if you're getting upset you can turn it off, you know if somebody like if I'm having an argument with my boyfriend I can't just turn him off, so I can then get myself really upset and stressed. But say I was arguing with the girl on the Skype I could just shut the laptop off, walk away, calm myself down and I could either re-approach the situation in a new frame of mind or I would just leave it. But you can't do that in real life you have to deal with it there and then, you can't just kinda, you can try and walk away but if you try and walk from by boyfriend he will follow you so that causes me a lot more stress.
269.	Yeah when you have depression and anxiety you're not in control of very much at all you're not in control of your moods, you're not in control of like I never feel happy, at least I can control something, you know you can, if someone's upsetting you, put them to the side and forget about it.
270.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.
271.	Well I have a routine and it does involve my phone but when I go to my bed I usually have a bath because I'm quite, my anxiety is bad so try to get as relaxed as possible, have a bath, I go to my bed, I scroll my newsfeed, no matter what I'll scroll that newsfeed if I've got insomnia I'll go and play on my phone, my phone tires me out, if I turn the brightness down, if it's too high it hurts my head but I'll sit and play like Subway Surfer because it's easy and it just puts me to sleep. I'd go on my phone every night before I go to sleep, never have I not been on my phone, I don't like my phone dying either, my phone is never dead because I would just freak-out if it died.
272.	Yeah, yeah, no I do use it, I use my alarm, this morning for instance I had to get up at half ten, that's not, well, if I don't get to sleep until three in the morning half-ten can be quite early so I make sure I'm up. I also babysit my partner's got two disabled cousins who need a lot of work and I offer to help one day a week to look after the kids so I need to have an alarm to make sure I'm up and ready because that, the little boy gets home from school, if I'm not there then no one's there. My partner has two jobs so he needs to get up at two in the morning so if he's staying at my house there needs to be an alarm on or he will not get up. I use the calendar to remind me because my calendar is an alarm as well so my calendar will set an alarm off on that day to let me know what's happening, so like today this meeting, had to make sure I had an alarm so I wouldn't forget, have my alarm on every second Tuesday for S or I will forget, my minds a bit, well my minds always going so I'll forget the little things.
273.	Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.
274.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement**
275.	Well obviously my phone, my phone's pretty much my life. Because I live on my own and I don't have a job just now, I don't have Wifi so I'm quite reliant on just my phone. I do, if I'm at someone's house like my mum's with Wifi I'll use my laptop and I do

	have a tablet and my iPod, everything's technology these days for me. So I, that's what I use regularly.
276.	Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
277.	Yeah, I don't think I would manage if I didn't have daily contact with people. I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody. And I do, I use like the NHS 24 if I'm having a really bad breakdown. So I would need my phone to contact them or to contact S if I'm needing to chat.
278.	Well it's a distraction, if you're having a really bad morning and you need a distraction because I'm quite good at sitting in silence and getting myself worked up so I have that, I've got that in hand if I was wanting to try and distract myself. And there's pictures on there as well, old pictures that I've taken on Facebook so I like to look at my old photos it cheers me up a bit.
279.	Yeah, the silence, when I'm having, when I'm having a really bad bought of depression I'm prone to self-harm. And instead of going for a piece of glass it would make me go for my tablet or my iPod or even my phone you know, play a game or my old photos it kinda stops me cause then you can't focus on, if I can't really focus, when I'm in that mind frame I can only focus on one thing at a time usually it's get the glass cut your arm, if I'm on the tablet I'm only focusing on tablet cause my mind just set, it doesn't work very well my minds not, I'm not at the right place at that time so it's easier to just look at one thing so my tablet will completely take away the need for glass cause I'm not.
280.	Well I'm not very safe in my own life like out-with technology I'm not very safe I self-harm, my depression leads to suicidal thoughts so if you're going to use something like a phone or that you need to be able to control how safe you are there because a lot of bad things happen.
281.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.
282.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs**
283.	H: Okay, so you don't have a landline, don't have like a house-phone so you use your smartphone to stay in touch with everyone?
284.	P: Yeah
285.	H: And that's through text and through voicemail, through just a normal telephone call, text, WhatsApp?
286.	P: Yeah, Facebook just…

287.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Accessing social support**
288.	Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
289.	You know, forcing me to go outside and see my friends is going to make me a lot worse and I'm probably going to cry and get really frustrated and upset and my friends aren't going to understand and they're going to get mad at me at least if I've got my phone I can send them a text to let them know I might not actually be physically with them but it doesn't mean I'm not still their friends and keeps me in touch with them all. When I went away to Edinburgh recently I was still texting everybody letting them know what was going on and I went to the zoo and I sent everyone pictures of the pandas and stuff just to let them know that they're not forgotten because I'm not there.
290.	Yeah, then I can always do something, even just sending them a funny picture off the Internet. That's totally suited to them, like if one friend likes a TV show you might send them a funny picture of that TV show and it shows that you're thinking about them you care about them, don't actually have to physically be there and then me and my friends like we're always there's always some sort of drama and somebody will say 'oh like you don't even care', well they can't, if you're texting them they can't really say that. So you're in constant contact, and even if something happens like if there's a TV show that I think my best friend will like I'll text her 'Channel 1 this is on you should give it a watch you'd love that', just little things, it makes you feel like you're not on your own.
291.	It does, if I'm having a bad day I could phone my boyfriend, he's really good, he keeps his phone on so his phone helps as well because he keeps his phone on all night on full volume so if I'm having a breakdown at three in the morning I can phone him and he'll be right up at my house.
292.	Well if I'm in a bad mood it can change me into a good mood because I can go and text somebody or if I', something really bad happens, like I had a really bad incident with my dad which, quite, well a couple of months ago which really messed with my head and I could have went off and tried to commit suicide but I didn't I phoned my friend and that kept me safe because there was somebody on the other end of the phone so then instead of getting so upset and having no one to talk to you had somebody to explain what happened and because I phoned my friend she was able to come meet me before I went off on one.
293.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Accessing social support\Expressing and fulfilling needs\Using mICTs for receiving comfort**
294.	I'm on my own you don't really have that instant access to speak to your friends they're all in their bed and I think as I said I live on my own so it's a lot more difficult so just going on the phone you can just scroll through your news feed and it's just comforting to know there's somebody awake. You don't even have to know the person but it's nice to just, and you're reading your news feed you're feel a little bit better. Like if somebody's in an argument or something you can sit there and think at least that's not me sort of thing.

295.	Yeah so I need my alarms and my calendar.
296.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Accessing social support\Helps with loneliness**
297.	I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody.
298.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Accessing social support\Helps with loneliness\Smartphone is only means of contact with outside world**
299.	Well I don't have a house phone so that's my only sort of contacts, with no Wifi as well, so my only contact with the outside world is my phone and then because I do have depression, I have anxiety too, I struggle to leave the house, so the only way I would be talking to people on a daily basis is through my phone.
300.	Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
301.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Maintaining relationships**
302.	You know, forcing me to go outside and see my friends is going to make me a lot worse and I'm probably going to cry and get really frustrated and upset and my friends aren't going to understand and they're going to get mad at me at least if I've got my phone I can send them a text to let them know I might not actually be physically with them but it doesn't mean I'm not still their friends and keeps me in touch with them all. When I went away to Edinburgh recently I was still texting everybody letting them know what was going on and I went to the zoo and I sent everyone pictures of the pandas and stuff just to let them know that they're not forgotten because I'm not there.
303.	Yeah, then I can always do something, even just sending them a funny picture off the Internet. That's totally suited to them, like if one friend likes a TV show you might send them a funny picture of that TV show and it shows that you're thinking about them you care about them, don't actually have to physically be there and then me and my friends like we're always there's always some sort of drama and somebody will say 'oh like you don't even care', well they can't, if you're texting them they can't really say that. So you're in constant contact, and even if something happens like if there's a TV show that I think my best friend will like I'll text her 'Channel 1 this is on you should give it a watch you'd love that', just little things, it makes you feel like you're not on your own.
304.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Meeting social need\Maintaining relationships\The importance of daily contact with people**
305.	Yeah, I don't think I would manage if I didn't have daily contact with people.

306.	I get really lonely, I live on my own, so I do get really lonely. So I'd be like a lot worse if I didn't have my phone because at least then you have the comfort of being able to just go and send a text if you're needing to talk to somebody.
307.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Social networking and health**
308.	H: Right, so it sounds for you then, to have like a social network whether it's real people and real life or through the Internet and Facebook or
309.	P: Yeah
310.	H: Having these social networks are ways of keeping you well.
311.	P: Mmhmm
312.	H: And your main contact with people in the real world or people online is through your technology, is that the best way to describe it?
313.	P: Yeah, yeah.
314.	I would have nothing. I would have no contact with the outside world. If I was having a bad bought of anxiety I could be in my house for a week, two weeks without leaving. How could I, if I didn't have my phone how would I have any contact with anybody. Cause people don't just come to the house, my house has a buzzer so I, if I can't get out my bed I can't let anybody in the house and then because I'm not leaving the house the house gets in a big mess so I don't want anybody in the house anyway. So if I'm having a bad day my house is a mess, the thought of having to go and get out my bed to tidy up would be really distressing. At least I can just go and text people now and I can still speak to people without having to put myself under any extra stress.
315.	I only really speak to people through my phone. There's a lot of friends I have that I'll speak quite a lot on my phone but I won't go out of my way to do anything with them which is really bad but and then I've got friends from like England who I couldn't just go and say hi to who get it like S who understands.
316.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Social networking and health\Using online social networking sites\Benefits\Choice and control over socialising\Being able to nosey at other people**
317.	There's all different reasons they're awake obviously but it's nice and like you can just even if there's nobody really that you want to speak to you can just go to a nosey on people's Facebook's
318.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Social networking and health\Using online social networking sites\Benefits\Combat loneliness**
319.	I'm on my own you don't really have that instant access to speak to your friends they're all in their bed and I think as I said I live on my own so it's a lot more difficult so just going on the phone you can just scroll through your news feed and it's just comforting to know there's somebody awake. You don't even have to know the person but it's nice to just, and you're reading your news feed you're feel a little bit better. Like if

	somebody's in an argument or something you can sit there and think at least that's not me sort of thing.
320.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Social networking and health\Using online social networking sites\Benefits\Combat loneliness\Comforted by reading news feed and knowing others are still awake**
321.	I'm on my own you don't really have that instant access to speak to your friends they're all in their bed and I think as I said I live on my own so it's a lot more difficult so just going on the phone you can just scroll through your news feed and it's just comforting to know there's somebody awake. You don't even have to know the person but it's nice to just, and you're reading your news feed you're feel a little bit better. Like if somebody's in an argument or something you can sit there and think at least that's not me sort of thing.
322.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Social opportunities\Social networking using mICTs\Social networking and health\Using online social networking sites\Providing communication options\Facebook**
323.	Like random things just to get a conversation started I get Facebook on my phone.
324.	H: And that's through text and through voicemail, through just a normal telephone call, text, WhatsApp?
325.	P: Yeah, Facebook just…
326.	That's just Facebook if I have Internet, it's well sort of it's weird but sometimes my, my tablet will connect to Internet from nowhere. My flat so sometimes I'll get Wifi for about half an hour for no reason, it's not connected to anything, so I sits and lets me on Facebook and that so that's more just a nosey on Facebook I don't really use it to contact anybody, it's just there.
327.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs**
328.	Well I have a routine and it does involve my phone but when I go to my bed I usually have a bath because I'm quite, my anxiety is bad so try to get as relaxed as possible, have a bath, I go to my bed, I scroll my newsfeed, no matter what I'll scroll that newsfeed if I've got insomnia I'll go and play on my phone, my phone tires me out, if I turn the brightness down, if it's too high it hurts my head but I'll sit and play like Subway Surfer because it's easy and it just puts me to sleep. I'd go on my phone every night before I go to sleep, never have I not been on my phone, I don't like my phone dying either, my phone is never dead because I would just freak-out if it died.
329.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Gaming helped with depression**
330.	I started off with going for walks and then I started to get really bad anxiety, I've not had anxiety for very long, I've only had that a few years, my depression has been since childhood. So before I had my anxiety I would go for a nice walk and I'd feel better but then I started becoming housebound with my anxiety so I needed to find something

	else so my boyfriend gave me an Xbox, his old Xbox and that really helped playing games, sometimes I can't be bothered to get out my bed, my depression does it really affects me, not leaving the house and sometimes not even my bed.
331.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Meditation, mindfulness and yoga\mICTs assist recovery**
332.	Yeah, media if used correctly and maturely, not by 14 year old children that are using it to cause fights can probably help with anything but its abused.
333.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Self-care**
334.	You know, forcing me to go outside and see my friends is going to make me a lot worse and I'm probably going to cry and get really frustrated and upset and my friends aren't going to understand and they're going to get mad at me at least if I've got my phone I can send them a text to let them know I might not actually be physically with them but it doesn't mean I'm not still their friends and keeps me in touch with them all. When I went away to Edinburgh recently I was still texting everybody letting them know what was going on and I went to the zoo and I sent everyone pictures of the pandas and stuff just to let them know that they're not forgotten because I'm not there.
335.	Yeah, then I can always do something, even just sending them a funny picture off the Internet. That's totally suited to them, like if one friend likes a TV show you might send them a funny picture of that TV show and it shows that you're thinking about them you care about them, don't actually have to physically be there and then me and my friends like we're always there's always some sort of drama and somebody will say 'oh like you don't even care', well they can't, if you're texting them they can't really say that. So you're in constant contact, and even if something happens like if there's a TV show that I think my best friend will like I'll text her 'Channel 1 this is on you should give it a watch you'd love that', just little things, it makes you feel like you're not on your own.
336.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Self-care\Distraction\Having something playing on mICT at night helps sleep\Nightime use**
337.	H: Yeah okay, so you've mentioned how you use the technology, when, is there any kind of pattern to when you use it, do you use it more, most in the mornings or is it in the evenings?
338.	P: Night time
339.	Yeah, my depression's worse at night time. I seem to have anxiety towards sleeping. I'm on the strongest amount of meds I can get, I'm on the full dose for my anti-depressants so sleep's difficult for me so night time you're, I'm on my own you don't really have that instant access to speak to your friends they're all in their bed and I think as I said I live on my own so it's a lot more difficult so just going on the phone you can just scroll through your news feed and it's just comforting to know there's somebody awake. You don't even have to know the person but it's nice to just, and you're reading your news feed you're feel a little bit better. Like if somebody's in an argument or something you can sit there and think at least that's not me sort of thing.

340.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Self-care\Distraction\Offers distraction from rumination**
341.	Well it's a distraction, if you're having a really bad morning and you need a distraction because I'm quite good at sitting in silence and getting myself worked up so I have that, I've got that in hand if I was wanting to try and distract myself.
342.	Yeah it's a good distraction.
343.	H: Right so if you're having a really bad day and you don't want to get out your bed you can still use that technology to stop yourself from self-harming or thinking negative thoughts?
344.	P: Yeah, I'm still distracted.
345.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Self-care\Distraction\Offers distraction from rumination\Distraction from silence avoiding self-harm**
346.	Yeah, the silence, when I'm having, when I'm having a really bad bought of depression I'm prone to self-harm. And instead of going for a piece of glass it would make me go for my tablet or my iPod or even my phone you know, play a game or my old photos it kinda stops me cause then you can't focus on, if I can't really focus, when I'm in that mind frame I can only focus on one thing at a time usually it's get the glass cut your arm, if I'm on the tablet I'm only focusing on tablet cause my mind just set, it doesn't work very well my minds not, I'm not at the right place at that time so it's easier to just look at one thing so my tablet will completely take away the need for glass cause I'm not.
347.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Self-care\mICTs and symptom management (self-management)\mICTs and self-management**
348.	Yeah, it's my only contact with people from having a really bad bought of depression then I'm not obviously leaving the house. If I had a normal phone I wouldn't have any contact with people.
349.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Uses phone as a personal organiser**
350.	Well yeah, I don't want to forget like S appointments are so important to me, if I miss them I could be going two weeks without an appointment. And that's probably not the best for me, cause I need regular contact to keep me afloat so if I missed an appointment I could be really hard hitting to me.
351.	Yeah so I need my alarms and my calendar.
352.	I used to use it to remind me now I remember myself because that was I said you kind of, if your alarm's going off same time every day you start to remember. I don't take my meds at a certain time either anymore, I don't know, I've went through, it was really bad but the doctors surgery was a big bank holiday didn't realise was off my anti-depressants for about a week and then I ran out of my anti-anxieties, my anti-anxieties

	beta-blockers and I get three a day if I need them so my beta-blockers don't need an alarm I can take them whenever I need it, my anti-depressants should really be taken at the same time but I'm experimenting just now because I'm thinking my medication's preventing sleep so I'm trying to figure out what time of the day is best for me so just no I don't need an alarm for them but once I'm in the, figure out what time I want to take them at they'll be an alarm on every day for that time.
353.	It does, if I'm having a bad day I could phone my boyfriend, he's really good, he keeps his phone on so his phone helps as well because he keeps his phone on all night on full volume so if I'm having a breakdown at three in the morning I can phone him and he'll be right up at my house. So, I have that instant sort of communication if I need it. And if say for some reason his phone was not on, which wouldn't happen but say this did happen, I could just phone up Breathing Space or NHS 24, like so constantly, but then if I can't get through to them it can cause issues as well, their lines can be clogged up so if you're on the verge of suicide and you're trying to get help and you can't get it, you know what I mean, so there's good points and bad points to.
354.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Uses phone as a personal organiser\Patient uses Calendar**
355.	Well yeah, I don't want to forget like S appointments are so important to me, if I miss them I could be going two weeks without an appointment. And that's probably not the best for me, cause I need regular contact to keep me afloat so if I missed an appointment I could be really hard hitting to me.
356.	Yeah so I need my alarms and my calendar.
357.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Finding keeping well adaptions through mICTs\Uses phone as a personal organiser\Uses alarm\Uses alarm for prompts i.e. medication**
358.	I used to use it to remind me now I remember myself because that was I said you kind of, if your alarm's going off same time every day you start to remember. I don't take my meds at a certain time either anymore, I don't know, I've went through, it was really bad but the doctors surgery was a big bank holiday didn't realise was off my anti-depressants for about a week and then I ran out of my anti-anxieties, my anti-anxieties beta-blockers and I get three a day if I need them so my beta-blockers don't need an alarm I can take them whenever I need it, my anti-depressants should really be taken at the same time but I'm experimenting just now because I'm thinking my medication's preventing sleep so I'm trying to figure out what time of the day is best for me so just no I don't need an alarm for them but once I'm in the, figure out what time I want to take them at they'll be an alarm on every day for that time.
359.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations**
360.	Yeah, it's a website called patient.co.uk and I think there you can use it for anything, any illness you've got I think you can probably use it for. And it's a forum within a forum, it's like one big forum and then there's loads of mini ones so just like mini chat rooms and I've signed up to two myself, I've got, no three sorry, I've got the depression one, the anxiety one and the Citalopram that's my medication, the Citalopram forum and you can post questions and people will answer them and people, there's always

	people online because it's support, it's global so I could be having a breakdown at three in the morning and somebody in another country will be awake. And, so you can post questions but you can also answer questions so if, if somebody is, an issue you think you can help with you can reply but they also have like, it's like a reward scheme sort of thing so say you answered ten questions you might get like the an achievement sort of, it's like almost like a game, you get, you unlock an achievement for being like a, like a good helper and then it levels you up almost like Yahoo, and so when I was having, I was, I have a lot of difficulty I was mentally and physically abused in childhood so and I really struggled to accept what happened so I posted on that site asking does anyone else have this problem and I had about twenty people reply and big paragraphs and people were telling me their stories. One girl was a mother whose daughter was physically abused by the dad so I could see it from my mum's point of view which was new to me because I had never seen it from her point of view and then there was people my age who were going through the same thing, there was adults who were telling you it gets better, I've been there, and there's people who are telling you don't feel guilty for, don't feel bad for being mad because my dad's got MS he's dying so I feel guilty that I'm not able to accept and make up with him so like they, their support and their help kind of helped me realise I don't have to forgive him I don't even have to acknowledge him and that's where I am now with no contact. And then there was a girl who was having a panic attack and she put, her friends had booked a trip to the theatre to get her out of the house and she really didn't want to go and she was having this almighty breakdown so I spent two hours just talking to her on this forum she ended up going to the theatre came back and she was like I couldn't of done it without you, thank you so much and it made me feel like I had helped somebody get over their anxiety for a day and it really made me feel better.
361.	Well every time a new post is put on the forum I get an email to my phone so I'm never off it.
362.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Helping others makes you feel better**
363.	And then there was a girl who was having a panic attack and she put, her friends had booked a trip to the theatre to get her out of the house and she really didn't want to go and she was having this almighty breakdown so I spent two hours just talking to her on this forum she ended up going to the theatre came back and she was like I couldn't of done it without you, thank you so much and it made me feel like I had helped somebody get over their anxiety for a day and it really made me feel better.
364.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Helping others makes you feel better\Advice of peers more genuine than professionals**
365.	Yeah, it sounds really bad because the professionals do know what they're doing they wouldn't have their degrees if they didn't but unless you've sat through depression you can't really say you understand because depression isn't just feeling down for a day I've had this since I was eight years old like this is my life has been a nightmare so to hear the doctor say like it's going to get better well how do you know there's people in that sight that tell you in never goes away and it's nice to accept it when you're twenty years old than still be fighting for your health when your forty and realising you're never going to get fully better.

366.	Yeah and my medication because the doctors just tell you to read the leaflet, they'll tell you maybe you might get some side-effects but they don't go through them with you. You get like ten minute appointment they can't, they don't tell you how to cope with your side-effects so at least you're getting like proper in-depth, first-hand knowledge, people who have actually taken them not the doctors who know, well they've read a text-book, they've not taken them themselves, they don't' know how bad the cold sweats can get at night, they just read what it does. At least you can get somebody who are like yeah I've been there it'll only last a week.
367.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Increases knowledge of situation**
368.	Yeah, I mean I can't always post on it because my Internet's not very good but I can always read what people are posting so even just reading it can be helpful like it sounds really selfish but seeing that someone's in a worse situation than you gives you new perspective like 'oh my goodness they had that happen to them and I'm like this and why?' And then some people were posting I get really bad shakes and I thought that was just me but somebody posted on the Citalopram page saying does anyone else get the shakes on Citalopram then the lightbulb clicked it's the medicine that's making me shake. So it's given me lots, it's just given me more knowledge of my situation as well.
369.	Yeah and my medication because the doctors just tell you to read the leaflet, they'll tell you maybe you might get some side-effects but they don't go through them with you. You get like ten minute appointment they can't, they don't tell you how to cope with your side-effects so at least you're getting like proper in-depth, first-hand knowledge, people who have actually taken them not the doctors who know, well they've read a text-book, they've not taken them themselves, they don't' know how bad the cold sweats can get at night, they just read what it does. At least you can get somebody who are like yeah I've been there it'll only last a week.
370.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Increases knowledge of situation\Learn new coping mechanisms**
371.	Yeah, they give you coping mechanisms too because there's, there's your usual going for walks and taking baths but that's what people say who don't know what depression is that's what people, that's the norm, that's what you should say, you get people who are sitting there saying instead of cutting your arms getting cranberry juice put it in the freezer and ice it put the on your skin looks like your skins bleeding so you feel like there's a release even though you're not hurting yourself but doctors aren't going to tell you to do that so they give you things that work.
372.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Increases knowledge of situation\Post questions and receive answers**
373.	Post questions and people will answer them
374.	People, there's always people online because its support, it's global so I could be having a breakdown at three in the morning and somebody in another country will be awake.

375.	So you can post questions but you can also answer questions so if, if somebody is, an issue you think you can help with you can reply but they also have like, it's like a reward scheme sort of thing so say you answered ten questions you might get like the an achievement sort of, it's like almost like a game, you get, you unlock an achievement for being like a, like a good helper and then it levels you up almost like Yahoo, and so when I was having, I was, I have a lot of difficulty I was mentally and physically abused in childhood so and I really struggled to accept what happened so I posted on that site asking does anyone else have this problem and I had about twenty people reply and big paragraphs and people were telling me their stories.
376.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Provides perspective**
377.	Yeah, I mean I can't always post on it because my Internet's not very good but I can always read what people are posting so even just reading it can be helpful like it sounds really selfish but seeing that someone's in a worse situation than you gives you new perspective like 'oh my goodness they had that happen to them and I'm like this and why?' And then some people were posting I get really bad shakes and I thought that was just me but somebody posted on the Citalopram page saying does anyone else get the shakes on Citalopram then the lightbulb clicked it's the medicine that's making me shake. So it's given me lots, it's just given me more knowledge of my situation as well.
378.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Provides perspective\See through different perspectives**
379.	Their help kind of helped me realise I don't have to forgive him I don't even have to acknowledge him and that's where I am now with no contact.
380.	Yeah, they give you coping mechanisms too because there's, there's your usual going for walks and taking baths but that's what people say who don't know what depression is that's what people, that's the norm, that's what you should say, you get people who are sitting there saying instead of cutting your arms getting cranberry juice put it in the freezer and ice it put the on your skin looks like your skins bleeding so you feel like there's a release even though you're not hurting yourself but doctors aren't going to tell you to do that so they give you things that work.
381.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Using forums\Can be negative at times**
382.	Yeah, you feel, if somebody's writing that 'it doesn't get better' because I know that mental illness it doesn't just go away and it will be there for life, it doesn't just cure, but sometimes when you're having a really bad day and then a message comes through saying it's never going to get better it's just another reminder you're ill. And people post that they feel suicidal cause they're looking for support or they're wanting to self-harm, it puts those ideas in my head.
383.	Well if I'm having a really bad day I don't always read the emails, I'll sit and build-up and then when I feel a bit better I can go and read them all. Or I'll just delete them.
384.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Using forums\Talking to others helped**

385.	Yeah if I'm at my mum's house I can use it I was using it, there was a girl I met from England and she had depression too but she was a lot worse than me and it helped to see somebody like what I could be if I kept going off the, in a bit of a crazy spiel thing, I could see that I could end up where she was and it kinda helped to talk to somebody who got it because not many people get it. So I used to Skype her a lot.
386.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Using forums\Talking to others helped\Using Facebook**
387.	Yeah I have her on Facebook and everything but I was able to talk directly to her through Skype.
388.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\Information gathering\Support forums and organisations\Using forums\Talking to others helped\Using Skype**
389.	Yeah I have her on Facebook and everything but I was able to talk directly to her through Skype.
390.	Yeah we videochat
391.	I prefer it because I, like that girl, S is her name. If I'd met her in real life, she lives in England, if she came to visit who knows what could happen because two people with a severe mental illness if they, what if they locked heads, something could really go down but at least if we like had a disagreement on Skype, shut the laptop and it's gone.
392.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\mICTs facilitate mood and emotional regulation**
393.	Well if I'm in a bad mood it can change me into a good mood because I can go and text somebody or if I'm, something really bad happens, like I had a really bad incident with my dad which, quite, well a couple of months ago which really messed with my head and I could have went off and tried to commit suicide but I didn't I phoned my friend and that kept me safe because there was somebody on the other end of the phone so then instead of getting so upset and having no one to talk to you had somebody to explain what happened and because I phoned my friend she was able to come meet me before I went off on one.
394.	Yeah, I have CBT with S and that's a lot of just talking through the past so I find that really helpful talking and there's a lot of my past which only comes to me when I'm reminiscing and speaking to my friends about it because I've had a lot of bad experiences that I've blocked off so it helps me to come back and remember what's effecting me because there's things in my mind that must be effecting my behaviour that haven't came to me yet. I think it's Freud who studied the mind into three sections and I'm sure that it must be memories there that are still affecting me so to talk it through brings back these memories then when, the more memories that come back the more I can deal with them and hopefully get over this depression.
395.	H: Okay and so it's talking through with your friends and family either in real life or online through your technology that could bring up these memories? That you can then kind of work on to help in your recovery and your way of having these conversations is through your phone?

396.	P: Yeah
397.	I only really speak to people through my phone. There's a lot of friends I have that I'll speak quite a lot on my phone but I won't go out of my way to do anything with them which is really bad but and then I've got friends from like England who I couldn't just go and say hi to who get it like S who understands.
398.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\mICTs facilitate mood and emotional regulation\mICT use can be cathartic\Making your day**
399.	So I can use my phone now, like send pictures, like the cat, I've got a kitten and a cat so I'll go and send my mum stuff and they'll send pictures back and just, something to make my day really.
400.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\mICTs facilitate mood and emotional regulation\mICT use can be cathartic\Phone keeps people alive**
401.	It's expensive, so if my phone breaks, I'm on ESA for disability because of my depression and anxiety so I don't get that much money, well I do now I've got quite, they give, they've put my money up now because my depression's so bad they've given me extra support but when I first moved out I just picked up my bags and walked out one day because I couldn't handle living with my mum any more. I was given a flat with no carpet, no oven, no nothing so if my phone broke as well when I had nothing anyone I just don't know, I probably, this sounds ridiculous but I probably in that frame of mind would have committed suicide. Because I had nothing else, everything I didn't, I couldn't eat, I had to live off microwave nuggets, it was disgusting. I had no carpets so I was cold all the time, didn't have sofas, I had nothing but I had my phone.
402.	It does, if I'm having a bad day I could phone my boyfriend, he's really good, he keeps his phone on so his phone helps as well because he keeps his phone on all night on full volume so if I'm having a breakdown at three in the morning I can phone him and he'll be right up at my house. So, I have that instant sort of communication if I need it. And if say for some reason his phone was not on, which wouldn't happen but say this did happen, I could just phone up Breathing Space or NHS 24, like so constantly, but then if I can't get through to them it can cause issues as well, their lines can be clogged up so if you're on the verge of suicide and you're trying to get help and you can't get it, you know what I mean, so there's good points and bad points to.
403.	**Centrality through interconnectivity\Outsourcing need\Duality of Engagement\Survival tool\mICTs facilitate mood and emotional regulation\mICT use can be cathartic\Reminiscing through social media improves affect**
404.	And there's pictures on there as well, old pictures that I've taken on Facebook so I like to look at my old photos it cheers me up a bit.
405.	I don't like myself any more I think I've gotten really fat and I don't like the way I look so when I look at the old pictures when I used to be really skinny and pretty, it makes me feel like, at least at one point, but I hated myself back then as well so it doesn't make any difference but I like to look back. And then there's memories from my friends, I've had a family breakdown, my dad, he had an affair and he left us and it's nice to look at the pictures before it all went downhill.
406.	Just know you're not the only one in the world that can't sleep. You know there's people by the way, there's all different reasons they're awake obviously but it's nice

	and like you can just even if there's nobody really that you want to speak to you can just go to a nosey on people's Facebook's go through your own photos because I really like going to my photos so I would go through and look at my old photos and now that I have that, look back at my memories on Facebook so every day I can go and have a look at what I was doing a year ago today, two years, three years, sometimes it's good because you can see that you were having a massive breakdown a year ago and today you are feeling fine or maybe three years ago you were doing something you really enjoyed so you can think to yourself well, maybe I'll try and do that again like go to Codona's, why don't I try and get that arranged because obviously I had a ball three years ago today.
407.	H: Right okay so using your technology to look back in time to times when things, you were feeling better or doing things that you liked is helping you feel better in the moment?
408.	P: Yeah
409.	Yes you can't always remember what happened a year ago, two years ago, six months ago, at least there it's actually in writing what you were doing if you've posted it and I'm quite, when I was younger I used Facebook every minute of every day. I'd be sitting in school sitting on Facebook under the table so it's good because I can look back and it's good to reflect as well because like maybe two years ago I was miserable living at home and then I can sit there and think of everything I have achieved since then.
410.	Yeah and that's really helpful if you're feeling really down about yourself and then somethings actually saying actually do you know what you've done really well. You feel a little bit better and maybe the bad thoughts will go away for a while.

Appendix 8: Empirical study reflective journal

The first six weeks of recruitment, April – May 2015, proceeded slowly, with two professionals and two patients being interviewed, respectively. Regular contact had been kept with community mental health teams (CMHTs) in Angus and Dundee City by telephone, and in person, at their team meetings. As direct approach to patients by the researcher was unavailable, this provided a reminder of the support required. Consideration was given as to whether, or not, expansion was necessary into Perth & Kinross, mental health services. Enquiries were made with NHS Research and Development (NHS R&D) as to whether a re-application to expand the recruitment area was necessary and they advised that is was not. Recruitment was also available from Inpatients and day hospitals as the research protocol stipulated secondary and specialist mental health services in NHS Tayside. This offered an amount of flexibility, as recruitment from CMHTs had been relatively uneventful up to that point. The clinical lead and service manager for Perth and Kinross mental health services were contacted and gave their support for the project. They copied in their operational managers into their reply emails so that the contact details were available for organising recruitment with individual teams. Necessary documents were submitted to NHS Research Ethics Committee (NHS REC) and R&D (amended invitation letter and protocol) to reflect the expansion and this was accepted without issue. At this point, a recruitment update poster was designed and sent to all CMHTs, which included a recruitment table so teams could compare their recruitment achievements. After two months, 11 patients and 2 staff had been recruited and permission granted from Dundee's Clinical Lead to contact all secondary and specialist mental health services in Dundee for support with recruitment.

By the end of June 2016, Perth and Kinross General Adult Psychiatry (GAP) had provided written support to use their services for recruitment. The two-team managers for the locality had agreed their support and granted access to their teams for when the researcher was ready to recruit the next batch of participants. The analysis of the first batch of 10 people was progressing by this point. After reflection, so that theoretical sampling would be more focused and future questioning directly influenced by developing theory, future batches would consist of 5 participants. The researcher continued to liaise with professionals in positions within the NHS that would facilitate access to patients i.e. Senior Charge Nurses. This therefore, gave the researcher access to all Inpatient and Outpatient, secondary and specialist, adult mental health services in NHS Tayside.

The first interview had provided an insight into a patient's uses and views of mICTs. With Brian, the researcher began to question whether the NHS, as a service, had provided any guidance about how to use mobile technology. He said they hadn't, therefore he found out approaches towards self-care/self-management himself. This is when the researcher started to realise it would be important, if Services did not offer guidance, or discuss mICTs in meetings with patients or use mICTs as a communication tool with patients; how would patients want to use mICTs in this way, if it was possible to do this? There appeared to be constraints between his use of mICTs and his interaction with Services. The researcher therefore, wanted to explore and understand what people would do if there were no restrictions placed upon them by Service design, Service technology usage and the therapeutic relationship. The researcher began to explore with Brian what mobile technology he would like to use in his recovery, framing the beginnings of using a miracle question. He was given the scenario that if he could use any kind of mobile technology, for any purposes, in regards to his mood disorder and interaction with Services, which one(s) would he like and what would he do with the technology.

After Tricia's interview it was becoming apparent to the researcher that there was a disconnect between NHS Services and patients in terms of discussing and using mICTS. Patients appeared to be figuring out how best to incorporate mICTs into their recovery themselves, whilst also appearing to be further ahead of Services in their adoption and use of mICTs. For example, one participant likened Services being in the Stone Age compared to his use of mICTs. Tricia relied heavily on mICTs as her 'portal' to the external world and gave her control and choice regarding information; in terms of how she accessed, what she accessed, and how she portrayed herself to people online. It was almost a mediating factor between her and others, whether in real life or the virtual world.

By this stage, the researcher had adapted the topic guide incorporating the miracle question, asking participants, if services could change and use mICTs what would be ideal for them. This prompted Tricia, and those participants following her, to think about their current methods of interacting with Services in comparison to a future where mICTs were incorporated and formed part of their therapeutic relationship.

Tricia described feeling that everything having gone wrong in her life recently, however her mICTs had given her the ability to contact her family, which was the most important thing for her. After hearing from previous interviewees and their preference for using mobile telephones, the researcher introduced a new question to Tricia; asking her whether

she used her landline or mobile phone and the reasons why. She raised the issue of cost for using mobiles, which influenced her decision on whether to use a mobile or landline. Tricia was asked if she would consider bringing mICTs into the work she did with her professional i.e. getting digital copies of material to work on and look back at between appointments. This was a natural progression in the line of questioning, as there appeared to be a sense from people with mood disorders of wanting more opportunities to increase their mICT use with Services.

During the process of interviewing the first batch of participants a recording was deleted due to a technical issue. The researcher had spent time immediately after interviews writing notes on his first thoughts and impressions and on this occasion, these detailed notes acted as a fail-safe for the interview. Therefore, all subsequent interviews were noted in detail even though, in retrospect, no further interviews were lost. This issue made the researcher reflect on the positive nature of keeping fresh interview notes, and a memo section was created in NVivo to capture initial ideas and insights when transcribing and then coding an interview. The benefits of this decision became apparent relatively quickly, as after Brian's interview was transcribed, comments were added into both his individual interview memo and the study's theoretical development memo. This traced the rationales behind the miracle question development, and also, captured the researcher's initial 'hunch' regarding NHS Services not incorporating mICTs into treatment options or client discussions. This hunch developed into a line of questioning regarding what participant's (patients) would want from NHS services if discussions regarding mICT use were available to them.

Towards the end of July 2015, all CMHTs in NHS Tayside had been visited and the research project presented to their staff. Patient and professional participant packs were left with CMHTs providing each team with 50 patient packs and 10 professional participant packs. By this point, ten patients and three staff had been interviewed and another four patients and two staff organised for interview. Two of the four patients organised for interview were from Dundee and Perth, which was helpful, as up until that point, all patients had been recruited from semi-rural or rural locations. The first batch of interviews were almost finished being transcribed. Careful attention had been placed on keeping a memo open when transcribing each interview to make notes of anything that stood out and to jot down ideas or interesting comments, which could be expanded on

later or during the first round of coding. A new memo was introduced at this point for interesting concepts coming out of doctoral supervision.

Mid-August, 2015, saw the first batch of interviews transcribed and work had started on open coding, and to some extent, focused coding. As data were analysed, memos of potential relationships and categories were kept, including noting the content and development of questioning style. The first batch of patient transcriptions was largely open coded as data emerged from the interviews. After interview seven, the open codes that had been created thus far, were themselves analysed through focused coding, this facilitated the creation of an emergent analytical framework.

Of note were patients' preferences not to use their mobiles as a telephone, instead, opting to use their smartphone for texting, instant messaging or communicating through social networking sites. There appeared to be a divide between patient and healthcare professional. Patients used their mICTs for a variety of reasons, one of which was self-care/management however, they appeared to have to find their own ways of using it in this manner and received minimal or no support from their health or social care professionals. The health and social care professionals interviewed highlighted related issues, such as; not feeling confident enough to discuss mICTs with patients, no guidance on safe websites or apps to suggest to patients, no guidance or framework to follow or scared regarding litigation if something should go wrong.

Due to the concurrent nature of interviewing, transcribing, analysing and theorising in CGT methodology, towards the end of working on the first batch of interviews, there was a requirement to assess the emergent theoretical categories. To facilitate this, the first batch was theoretically sampled to explore the properties and dimensions of the emergent conceptual and analytical framework and to verify its resonance with the data. Coding portrayed the meaning construed from data; resonating though open, focused, and higher-ordered constructs as coding became increasingly analytical and conceptual. All existing coding were subsumed into the conceptual and analytical framework with no new categories or focused codes emergent from data. Through the completion of this process, both a typology of mICT use by people with mood disorders began to emerge, and a decision made, for memos to be incorporated into a memo bank and sorted numerically. At the end of August, 2015, Perth CMHT was re-visited, firstly to have a meeting with staff that had not already been introduced to the study, and secondly, to attend the team's multi-disciplinary meeting.

Throughout the start of September 2015, the researcher continued to analyse, code and write memos. The researcher decided to memo the folders created in NVivo, as they essentially captured the meaning of all the codes held within them. The main concern and core category of 'centrality through praxis of interconnectivity' emerged from the conceptual framework at this point with the categories and focused coding underneath reflecting this. The memos became increasingly important, and their need to be continually written, was increasingly evident, as they tracked and explained the focused coding, emergent categories, and the comparing and contrasting processes.

By mid-September, 2015 focused coding and writing memos explaining the codes, categories and their relationships to one another had been completed. The project's memo bank was coded into theoretical sets, categories, sub-categories, which highlighted their (inter)relationships. Focused codes and categories were linked to memos in NVivo, facilitating the use of memos to explicate relationships between codes and categories, and also, to retain important information regarding; their content and coding rationales. The researcher decided in order to increase the transparency, credibility and rigor of his analysis, to share his NVivo project with his supervisory team. Therewith, every aspect of his project could be explored by his three supervisors before each supervisory meeting promoting discussion and reflection. Vignettes were added to the top of each interview detailing age, sex, and a basic profile; introducing the participant to the reader, which helped when comparing participant with participant later in the study. This also helped the researcher's supervisors' feel closer to the participant as they hadn't had the opportunity to meet with them.

October 2016 saw categories develop further by exploring their dimensions and properties through theoretical sampling. The patient topic guide was updated to explore experiences at an increasingly conceptual and theoretical level. The core concern was further refined, through asking questions of the data at a focused-code and upward level of data transformation. The topic guide was re-submitted to NHS REC and this was approved before being used with the next batch of five people. This provided the opportunity to theoretically sample, by changing the line of questioning to further explore the emergent theory. Also at this time, the meta-synthesis' search strings were re-run in CINAHL, PsychINFO, Embase and Medline with updated time parameters. This returned approximately 800 articles, which were screened for relevance, retaining eighty-

one to inform the grounded theory and. PDFs of the articles were imported into NVivo for use in the analysis and theory development.

The end of November 2016 saw the next batch of participants (patients) being interviewed and transcribed bringing completed interview numbers to fifteen. Ten further patients had been recruited and were awaiting interview, bringing the total to 25 patients, which made the attainment of sampling numbers as set out in the research protocol realistic. It was found that discussing, at a theoretical level; the coding with participants was problematic, as they lacked the context within which the coding and theory sat. Therefore, in an iterative process, the style of questioning was quickly changed to explore the same topics, but from less direct, and more understandable angles. This helped extract the perspectives of the participants regarding the analytical framework without directly asking them their thoughts on specific codes. This approach was used for the subsequent interviews with good levels of success, facilitating the gathering of rich data. Thereafter, the three further batches were all theoretically sampled in the same manner, i.e. changes in the topic guide's focused questioning to explore emergent theory. The theoretical sampling, using constant comparative method, memo and theoretical memo writing, refined the theory through each consecutive batch of interviews. The next five interviews were transcribed and coded refining the analytical framework further. Focused codes became rich with data, and theoretical codes and memos, became increasingly analytical and theoretical in perspective. To reflect this, the next batch of five interviewees were asked questions that provided more analytical and theoretical answers, moving away from the descriptive accounts of mICT use to understanding theoretical perspectives, processes and relationships. This was reflected in the time of interviews as they became shorter and more precise.

After analysing 20 patient interviews, the prospect of theoretical saturation appeared attainable, as no new focused codes, categories or theoretical codes were being produced; instead, what was already there was being refined. At the start, interviews lasted over an hour whereas, batch 15-20 lasted no more than 30 minutes each, providing rich data to understand and explicate the emergent theory. Also, indicative of gradual theoretical saturation, by the time of analysing the twentieth interview, the number of new codes was reducing significantly, and major changes to the analytical framework were no longer taking place, instead, inter-relationships were being refined.

By the end of January 2016, 25 patients and 10 health professionals had been interviewed. All patient interviews had been transcribed and the researcher was transcribing his fifth health professional interview. The process of interviewing, transcribing and analysing in batches had been followed, with four batches recruited up until that point. The first three batches of patient interview analysis had extensively explained the data, firstly, from a descriptive level using open codes, and then analytically, through focused coding. Patient interviews 21-25 were analysed at a theoretical level, coding large sections of text into established theoretical codes, indicative of theoretically saturation. After interview 26, no new data emerged, instead, the interviewee reflected back on their identification with the grounded theory, at which point, theoretical saturation was assessed as having occurred. Finally, batches one to five were theoretically sampled further refining and achieving resonance in relationship between data and grounded theory.