

The Feasibility and Efficacy of a Positive Psychotherapy Group for Community Stroke Survivors and Carers

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This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

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ABSTRACT

Psychological distress is common for both survivors and carers following a stroke, but the evidence base for psychological interventions is limited. This study investigated the feasibility and efficacy of an interactive group-based Positive Psychotherapy [PP] intervention for stroke survivors and carers. PP is an approach that focuses on individuals' strengths and engagement in life with the aim of improving their psychological wellbeing. This study is comprised of two parts (1a and 1b), within which changes in psychological wellbeing and psychological distress were the main outcomes investigated. Study 1a: stroke survivors and carers ($n=48$) were randomly assigned to the five-week PP group or waiting-list control. Study 1b: stroke survivors and carers ($n = 20$) were assigned to the PP group only. All participants completed measures of psychological wellbeing (SWEMWBS), psychological distress (HADS), multidimensional wellbeing (PERMA-P) and daily functioning (FAI) at three time points (baseline, 5, 10 weeks post-baseline). Statistical analyses were conducted to examine changes in mean scores across time. Supplementary qualitative feedback regarding the PP intervention was collected via a focus group ($n=10$). Study 1a participants reported significant improvements in daily functioning following attendance at the PP group. Increases in psychological and multidimensional wellbeing were reported following attendance at the PP groups; however these changes were not statistically significant. In conclusion, the PP intervention was feasible to deliver. A full-scale trial, with the recommended improvements made, is required to further investigate the efficacy of the PP intervention regarding psychological wellbeing and daily functional amongst community-based stroke survivors and carers.

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CHAPTER ONE: INTRODUCTION

1.1 THESIS FOCUS

Stroke is the largest cause of death and disability in the UK (Office of National Statistics [ONS], 2014). Within Wales, an estimated 11, 000 people per year have a stroke; of those who survive over half remain dependent on carers for assistance with daily living (National Audit Office [NAO], 2005). Approximately 25% of all strokes occur in ‘young-adults’ aged 18- 65 (www.stroke.org.uk; <http://wales.gov.uk>), of these young adults, only 50% return to work post-stroke (Daniel *et al.* 2009). This has psychological and financial implications for the individual and their family, as well as for the UK economy; 15% of the total cost of stroke to the UK economy is due to unemployment following a stroke (Saka *et al.* 2009).

Strokes can affect people physically, psychologically (cognitively, behaviourally, emotionally) and socially (isolation, social identity) (de Weerd *et al.* 2011); over half of survivors perceive themselves to be cognitively and/or physically disabled (Röding *et al.* 2010) and up to 40 % experience social and psychological issues (McKevitt *et al.* 2011). The residual effects of a stroke can have a detrimental effect on the individual’s quality of life [QoL] and functional recovery and have been evidenced to result in greater functional dependence, poorer cognitive functioning, reduced social activity and increased mortality (Naess, *et al.* 2006; Turner-Stokes & Hassan, 2002).

Strokes do not affect the survivor in isolation; they have a profound effect on the systems (family, spouses, carers) surrounding the individual. Stroke caregivers also experience high levels of psychological distress and sleeplessness (Stroke Association [SA], 2013) which, combined with a feeling of ‘burden of care’, can negatively affect the survivors’ rehabilitation outcomes (van de Port *et al.* 2006).

To help address the psychological needs of stroke survivors and their carers, effective psychological care is needed within all stroke services. National guidelines and frameworks (National Institute for Health and Clinical Excellence [NICE], 2008; Royal College of Physicians, 2012; Welsh Government, 2012) recognise the need for and recommend the provision of routine psychological services within stroke care. However, over 50% of stroke units in England and Wales have no access to psychology services (Royal College of Physicians, 2012). Furthermore, access to psychological

services within the community is reportedly even less satisfactory (Care Quality Commission [CQC], 2011), with stroke services within Wales rated as the poorest, thus highlighting the need for increased access to psychological care within stroke services across the UK (NICE, 2010; Welsh Government [WG], 2012a). Regardless of the recommendations, the evidence base for the efficacy of community-based psychological interventions for stroke remains limited and is largely based upon 1:1 interventions (House, 2000; Johnston *et al.* 2007; Jones *et al.* 2009; Rasquin *et al.* 2009; Watkins *et al.* 2011). However, a number of group based interventions have been evaluated, and the results are promising. They suggest that group based interventions are a cost-effective way of improving survivors' and carers' wellbeing (Gurr, 2009; Stewart *et al.* 1998; Morris & Morris, 2011). Although promising, further development of the evidence base is required.

Wellbeing has been reported to be highly correlated with level of functional recovery post-stroke (de Weerd *et al.* 2012), thus suggesting that positive psychological factors may have an important role in post-stroke recovery. Positive Psychotherapy [PP] is an approach that seeks to enhance positive psychological factors and challenge the dominant culture of 'fixing what's wrong' (Duckworth *et al.* 2005):

'Psychology is not just the study of disease, weakness, and damage; it also is the study of strength and virtue. Treatment is not just fixing what is wrong; it also is building what is right...' (Seligman, 2002, p.4)

PP originates from Positive Psychology, this approach has been defined as the 'scientific study of optimal human functioning that aims to discover and promote the factors that allow individuals and their communities to thrive' (Seligman & Csikszentmihalyi, 2000). There is promising research emerging suggesting the efficacy of PP interventions across a range of physical health populations including traumatic brain injury (Andrewes *et al.* 2014), acute cardiovascular disease (Huffman *et al.* 2011) and breast cancer (Cerezo *et al.* 2014). A pilot study conducted by the author examined the efficacy of a group-based PP intervention for stroke survivors within the acute stroke setting (McMakin, *et al.* 2014); a positive change in wellbeing and a significant reduction in symptoms of anxiety and depression were observed following attendance at the group. Although no control group was used, these preliminary findings suggest that a positive psychology-based group intervention may be effective in improving stroke survivors' psychological wellbeing (McMakin, *et al.* 2014). These findings have important implications for stroke services as it is a cost-effective method of increasing patients' access to psychological treatment. To the author's knowledge, no research study has formally evaluated the effectiveness of PP interventions amongst stroke survivors and carers. Cullen *et al.* (2016) included stroke survivors within their 'acquired brain injury' sample, but, they did not solely focus on this population and evaluated a 1:1 PP intervention.

The primary aim of the studies reported in this thesis were to evaluate the feasibility and effectiveness of a PP intervention for stroke survivors and carers living within the community. A number of standardised self-report measures of emotional wellbeing were used to quantitatively evaluate the intervention; in addition, qualitative feedback was obtained via a focus group. If the PP intervention is deemed to be effective, it could have important implications for community stroke services and stroke survivors and carers once discharged from the acute hospital setting. It is hoped this research will inform the future development of improved community psychological intervention provided to those affected by stroke.

1.2 KEY TERMINOLOGY DEFINITIONS

1.2.1 Stroke

A stroke occurs when a blood vessel that supplies the brain is ruptured (haemorrhagic stroke) or blocked (ischaemic stroke); this results in oxygen starvation and subsequent brain damage. Ischaemic strokes are the most common type of stroke, they account for 85% of all strokes. Strokes are more common amongst men, but, the severity of the stroke is typically greater amongst females (Appelros *et al.* 2009).

1.2.2 Positive Psychotherapy [PP]

PP is a therapeutic approach that focuses on “the conditions and processes that contribute to the flourishing or optimal functioning of people, groups and institutions” (Gable & Hadit, 2005). More specifically, PP interventions focus on identifying what makes life worth living, meaning and purpose, recognising and using individuals’ strengths and increasing individuals’ engagement in life with the aim of improving their psychological wellbeing and quality of life (Duckworth *et al.* 2005).

1.3 THESIS RELEVANCE

1.3.1 Stroke

Strokes are a leading cause of disability across the world; within the UK there are approximately 1.1 million stroke survivors living with the effects of this chronic illness (British Heart Foundation, 2012). Encouragingly, there have been recent improvements in survival rates, but, due to people living longer in general, it is likely that the population of stroke survivors will increase over the

coming years (Lee *et al.* 2011). This anticipated increase has marked implications for stroke services, the health and social care services and ultimately the UK economy. Furthermore, the presence of associated co-morbid mental health difficulties places increased demands on already limited psychological services available within the community.

1.3.2 Stroke Carers

Up to 50% of stroke survivors are dependent upon carers for support with their everyday needs (NAO, 2005). Typically the carers are the spouse and/or another family member (Anderson *et al.* 1995). Undoubtedly, caring for a loved one who has experienced a stroke is challenging; understandably, carers report experiencing a ‘burden of care’ (van de Port *et al.* 2006), difficulty coping with the changes in social engagement, mood, and managing the physical and behaviour demands placed upon them (Low *et al.* 1999). Typically, the needs of the stroke survivor are the primary focus of stroke services, and consequently the needs of the carer may remain unmet (Hafsteinsdottir *et al.* 2011). Encouragingly, the needs of stroke carers are considered within professional guidelines (The British Psychological Society [BPS], 2010) and national stroke strategies (e.g. Department of Health, 2007), although, the provisions to support these needs are limited.

1.3.3 Emotional Wellbeing after Stroke

Many stroke survivors report that the psychological and psychosocial difficulties associated with a stroke are the most challenging to cope with as identified by Lanza (2006): *‘If stroke only caused paralysis and a danger of death it would be a terrible affliction, yet the biggest tragedy of stroke lies in its mental effects’* (p.768). If left un-treated, psychological problems can have a detrimental effect on individuals’ long-term functioning (Broomfield *et al.* 2011; Young & Foster, 2007). The presence of co-morbid psychological difficulties has marked cost implications for the health and social services providing ongoing post-stroke care (Naylor *et al.* 2012).

1.3.3.1 Post-Stroke Depression and Anxiety

Depression is the most commonly reported psychological difficulty reported following a stroke (NAO, 2005); an estimated 33% of survivors experience depression (Hackett *et al.* 2005) and a further 20% experience high levels of anxiety (Campbell Burton *et al.* 2013). Self-reported psychological difficulties are also commonly reported by carers; up to 56% report feeling depressed and up to 79% report experiencing anxiety (Low *et al.* 1999).

Depression is not limited to the acute phase of stroke recovery; the peak prevalence of depression is at

6-24 months post-stroke (Turner-Stokes & Hassan, 2002). Furthermore, 30% of all survivors experience depression 5-10 years later (Ayerbe *et al.* 2011; Ayerbe *et al.* 2013). The presence of post-stroke psychological difficulties such as depression are predictive of poorer physical functioning up to a year later (Lincoln *et al.* 2012). The absence of intensive rehabilitation input combined with perceived hopelessness, higher external locus of control and negative coping styles, and possible physical/cognitive/language impairments and/or fatigue following a stroke, may make it more difficult for survivors to participate in meaningful and age-appropriate activities. Thus, restricted dependence and engagement in meaningful activities is likely to negatively affect the individual's mood (Broomfield *et al.* 2011).

1.3.3.2 Other Psychological Difficulties Post-Stroke

Coming to terms with the 'new self' and an unknown future following a stroke is understandably difficult (Dixon *et al.* 2008). The discontinuity between the 'old' and 'new' self maintains distress and negatively impacts the survivor's wellbeing (Cantor *et al.* 2005). Often survivors worry what others may think which can in turn affect relationships and desire to socialise (Banks & Pearson, 2004). Approximately 25 % of stroke survivors experience emotional lability (House *et al.* 2004), 22-28% generalised anxiety (Anström, 1996) and 10-30% post-traumatic stress reactions (Bruggimann *et al.* 2006). Other reported difficulties include sexual dysfunction (Thompson & Ryan, 2009), relationship difficulties (SA, 2013), anger (Santos *et al.* 2006), fatigue (Duncan *et al.* 2012), 'loss of self' (Murray & Harrison, 2004), grief, fear, frustration, denial, and hostility (Teasell *et al.* 2000).

Social isolation, decreased independence and lack of engagement in meaningful activities are likely to increase the possibility of post-stroke psychological difficulties, and contribute to a poorer QoL (Broomfield *et al.* 2011). The presence of cognitive impairments post-stroke, in particular those affecting information processing, executive functioning and attention, are also likely to produce and/or maintain psychological difficulties post-stroke (Williams *et al.* 1997).

1.3.4 National Stroke Strategies

Welsh stroke services have in the past been rated as the poorest of all developed countries, however, the Welsh Government have recently developed a stroke strategy plan to improve clinical services across Wales which in turn will attempt to address the unmet health and psychosocial needs of stroke survivors and carers (WG, 2012). Furthermore, a number of professional bodies, including the BPS, have highlighted the necessity of routine psychological support following a stroke (BPS, 2012). In 2007 the national strategy for stroke (England) developed a quality framework to raise the standards of stroke care (DoH, 2007). However, a review of all stroke units in England, Ireland and Wales

revealed that less than half had access to regular psychological input (Royal College of Physicians, 2012). Although the provision for psychological services has since improved within the acute setting, psychological services within the community remain inadequate.

1.3.4.1 Cost Implications of Stroke

The estimated cost of stroke care across the UK is over £3 billion each year, and when the cost of informal care and the cost of stroke care on the wider economy is added to this the overall cost rises to approximately £8 billion each year (NAO, 2010). As previously mentioned, unemployment following a stroke has a marked financial impact on the UK economy; it is estimated that unemployment following a stroke amounts to £1.5 billion in loss of earnings (Saka *et al.* 2009). Implementing an effective psychological intervention to support stroke survivors and or carers in returning to work would be of cost-saving benefit, and the savings made could be re-invested in ensuring all rehabilitation services across the UK have access to routine psychological input.

A review of all hospital services across Wales revealed that hospital services for circulatory diseases, including strokes, was responsible for the second highest costs of all services provided. They accounted for 8.7% of all NHS Wales expenditure, which equated to £464.4 million (WG, 2012). It has been well established that emotional wellbeing plays a significant role in physical recovery post-stroke (Turner-Stokes & Hassan, 2002) and this clearly has significant cost implications for the health and social care services. It has been estimated that the cost of post-stroke care for individuals who develop co-morbid psychological problems such as depression is 45% higher than for those who do not experience post-stroke psychological problems (Naylor *et al.* 2012).

By incorporating Clinical Psychology services in rehabilitation teams, aside from the psychological benefits to stroke survivors and carers, there is a marked financial benefit in terms of cost saving for the NHS and social care services commissioning the rehabilitation service and providing the on-going post-stroke care (Gillham *et al.* 2012).

1.3.4.2 Improving Community Stroke Rehabilitation Services

As highlighted throughout this chapter, there are a number of psychological difficulties associated with having a stroke. With the peak prevalence of post-stroke psychological difficulties occurring at 6-24 months post-stroke (Turner-Stokes & Hassan, 2002), it is essential that psychological services are routinely provided as part of post-discharge care.

As reiterated throughout this introductory section, the provision for psychological services within stroke care remains limited, particularly within the community setting (NAO, 2010; NICE, 2010; CQC, 2011). Furthermore, although psychological services play a large role in identifying and

‘treating’ stroke survivors’ psychological needs *‘the whole multidisciplinary rehabilitation team need to be able to identify psychological issues and know how to manage these, even where their role is simply to recognise problems and refer on to others using the identified pathway.’* (Gillham & Clark, 2011, p.5).

1.3.5 Psychological Support after Stroke

1.3.5.1 Psychological Services within Stroke Care

Routine psychological support following a stroke has been recognised as a vital aspect of an individual’s recovery and on-going rehabilitation (NAO, 2010; NICE, 2013). Psychological interventions have the potential to increase stroke survivors’ and carers’ wellbeing and quality of life (Gillham *et al.* 2012), and this has significant cost benefit implications for the health services. Beyond the traditional model of one-to-one psychotherapy, Clinical Psychologists provide psycho-education, staff training, facilitate group based psychological interventions and support the facilitation of peer support groups, all of which have been reported to have a positive impact on survivors’ and carers’ psychological wellbeing (Gurr, 2009; Morris & Morris, 2011; Stewart *et al.* 1998).

The provision of psychological services available post-stroke is frequently reported as the least satisfactory aspect of post stroke care; over 50% of stroke survivors rated psychological care post stroke as *poor* or *very poor* (Pound *et al.* 1993, as cited in Morris, 2015). There continues to be a marked disparity in the provision of psychological services available within the acute and community setting; 30% of carers report feeling dissatisfied with the provision of psychology services available within the acute hospital settings in comparison to 61% of carers dissatisfied with the provision available within the community (Pound *et al.* 1993, as cited in Morris, 2015).

Between 40-80% of those surveyed in a national audit reported experiencing unmet psychological needs (NAO, 2010). This is echoed in McKeivitt *et al.*’s. (2011) survey findings within which stroke survivors expressed that they did not receive adequate support with their psychological needs (McKeivitt *et al.* 2011). Sadly, this is not unique to stroke survivors. Only one third of carers report receiving support in managing their own feelings of anxiety and/or depression once their partner/family member had been discharged from hospital (SA, 2013).

England, Scotland and Ireland appear to be increasing the provision of psychological services within community stroke care and making overall improvements to the standards of care delivered. However, Welsh services appear to be making less progress in addressing the unmet psychological needs of stroke survivors and carers (National Assembly for Wales [NAW], 2010). The Welsh Government has recognised the need for improvements to be made to rehabilitation and community services across Wales. They have published recommendations regarding increasing resources within

multi-disciplinary teams, including the provision of psychological services (NAW, 2010). Despite these recommendations, a recent report written by Clinical Psychologists working within stroke services across Wales highlighted the fact that access to psychological care along the stroke care pathway continues to be absent, inaccessible or unavailable for the majority of community based stroke survivors (Applied Psychologists in Health National Specialist Advisory Group [APHNSAG], 2014). The British Psychological Society currently recommends that an average general hospital catchment area of 500,000 should have two full-time Clinical Psychologists and one assistant to meet the needs of stroke survivors (BPS, 2010). However, none of the health boards within Wales meet these recommended staffing levels, and consequently the psychological needs of stroke survivors and carers remain largely unmet (APHNSAG, 2014). This is consistent with reports from UK-wide stroke services. For example, 60-70% stroke services in England have no access to psychological input from a Clinical Psychologist (CQC, 2011). Fortunately, community-based support is available across the UK via third sector organisations such as The Stroke Association, but, the level of support available varies greatly between regions. Within Wales, support services provided by Stroke Association Wales [SAW] is highly valued by service-users (SAW, 2014). However, the support provided is not delivered by trained psychological practitioners and does not focus on psychological wellbeing and therefore, cannot be viewed as a substitute to the benefits of the inclusion of psychology services within all stroke care teams.

1.3.5.2 *Psychological Therapy Post-Stroke*

Both national and local guidelines recommend the use of evidence-based psychological interventions in stroke services (DoH, 2012; WG, 2012a); they suggest that in order to psychologically adjust to their ‘condition’, stroke survivors should routinely receive psychological interventions that promote effective use of coping skills and mechanisms to support adaptation. Despite the recommendations, the current evidence- base for the efficacy of psychological interventions for stroke remains sparse.

Given that antidepressants are reportedly ineffective in the treatment of post-stroke depression (Hackett *et al.* 2008), the evidence base for the efficacy of psychological interventions is all the more important and needs further development. A number of published randomised controlled trials (RCTs) have suggested that motivational interviewing [MI] (Watkins *et al.* 2011) and/or problem-solving therapy based psychological interventions are effective in the treatment of post-stroke mood disturbances (House, 2000). In comparison to normal care, participants in the Watkins *et al.* (2011) trials demonstrated fewer mood disturbances after four MI sessions at three and twelve months post-stroke. Although a treatment effect was reported, the treatment effect size was small. Secondly, the effect of treatment observed may have been attributable to the benefits of increased ‘social interactions’ rather than the therapy itself. However, if this is the case this is an important

consideration in itself and could be used to develop a group intervention in which social interactions with others are increased. Despite the limitations of the study, a reduction in low mood was observed with only four sessions, indicating that this may be a cost-effective method of delivering psychological care if delivered via a group format.

Despite its recommendation within national clinical guidelines (NICE, 2009), there is limited support for the efficacy of CBT interventions within the stroke literature. Lincoln *et al.* (1997) reported that stroke survivors experienced a reduction in symptoms of depression following a 16 week CBT intervention, but, 56% of patients experienced no benefits (Lincoln *et al.* 1997). A similar 8 week CBT intervention conducted by Rasquin *et al.* (2009) reported that 80% per cent of the stroke participants experienced an improvement in their mood. These improvements were not observed in all participants at a 3-month follow-up. This suggests that the intervention did not have a long-lasting effect on participants' psychological wellbeing (Rasquin *et al.* 2009). Lincoln and Flannaghan (2003) conducted an RCT of CBT for post-stroke depression, in contrast to their earlier findings, there were no significant changes in reported symptoms of depression following the intervention (Lincoln & Flannaghan, 2003).

Providing stroke survivors and/or carers with psycho-education and/or self-help workbooks can increase their sense of empowerment and wellbeing (Johnston *et al.* 2007; Stroke Association [SA], 2013). Of note, providing information alone without any therapeutic guidance does not improve their psychological wellbeing (Forster *et al.* 2012). Within the literature, a range of other psychological approaches have been reported to improve stroke survivors' wellbeing. These include; behaviour therapy (Thomas *et al.* 2013), relaxation group (Kneebone *et al.* 2014), and mindfulness-based cognitive therapy (Merriman *et al.* 2015). As with all of the studies reported within this section, caution must be taken when interpreting the reported findings as a number of methodological issues, including small sample sizes and an absence of comparison control groups, limit the quality of the studies reported.

The evidence base for the efficacy of group based psychological interventions for stroke survivors and carers is within its infancy, but, the few studies that exist offer some promise. For example, Gurr's (2009) CBT wellbeing group was effective in reducing distress (anxiety and depression), and improving adjustment and coping skills amongst a group of inpatients on an acute stroke rehabilitation unit (Gurr, 2009). However, due to the small sample size (n=16) and the absence of a control group comparison, caution must be excised in the interpretation (and generalisability) of these findings. Peer support groups have also been reported to be an effective group based intervention that can improve stroke survivors' and carers' psychological wellbeing (Morris & Morris, 2011; Stewart *et al.* 1998). Stroke survivors report that peer support groups have enabled them to make new social

connections, given them a sense of ‘meaning and purpose’ and enabled them to engage in meaningful activities (Morris & Morris, 2011).

Despite their limitations, the above studies provide an insight into the potential benefits of group-based interventions and encourage further development of the evidence base within this area. If evidenced to be effective in improving psychological wellbeing, group-based interventions could be included as a routine and essential component of community-based stroke care. Furthermore, groups may be instrumental in alleviating other possible unmet psychosocial needs such as social isolation, which may result in and maintain post-stroke psychological difficulties such as depression and anxiety.

1.3.5.3 *Improving the Evidence-Base*

Within post-stroke care and rehabilitation services there is an emphasis on ‘fixing what’s wrong’; PP offers an alternative approach which aims to support an individual to thrive, to help them establish a sense of meaning post-stroke and to increase their engagement in life with the hope of improving their quality of life and psychological wellbeing (Duckworth *et al.* 2005). There is growing evidence of the benefits of PP interventions across a number of chronic health conditions including: traumatic or acquired brain injury (Andrewes *et al.* 2014; Cullen *et al.* 2016), breast cancer (Cerezo *et al.* 2014), chronic pain (Howell *et al.* 2015), acute cardiovascular disease (Huffman *et al.* 2013; Huffman *et al.* 2015) and HIV (Moskowitz *et al.* 2012). Further details of these studies are provided in section 1.5.5.2 and the systematic review later in this chapter. Although the findings are encouraging, the research evaluating PP interventions is of variable quality and is subject to a range of methodological limitations. Furthermore, to the author’s knowledge, no studies have solely focused on the efficacy of PP interventions for stroke, hence further research within this field is required. Throughout the literature it has been identified that wellbeing plays a vital role in maintaining physical health, promoting quality of life and enhancing functional outcomes following a stroke (Stewart & Yuen, 2011; Turner-Stokes & Hassan, 2002;). Thus further exploration of the efficacy of psychological interventions to enhance stroke survivors’ and carers’ wellbeing is needed.

1.4 Section Summary

As reiterated throughout this section, strokes can have a devastating physical and psychological impact for an individual and the systems around them. Beyond the effects on physical functioning and psychological wellbeing, strokes have significant financial implications for health services and the wider UK economy (Naylor *et al.* 2012). What is more, with the increasing ageing population and the

decrease in mortality following a stroke, the ‘burden’ of stroke care will continue to rise. Although the psychological needs of stroke survivors have been recognised (DoH, 2012; NICE, 2010; WH, 2012), the provisions for psychological services within stroke rehabilitation remains limited. Moreover, the access to psychological interventions is poorest within the community setting (CQC, 2011) where the peak prevalence of psychological problems occurs (Turner-Stokes & Hassan, 2002). The presence of any residual cognitive and language impairments act as an additional barrier to accessing non-specialist psychological care within the community mental health teams (SA, 2013), improving community-based treatments and access to psychological interventions within stroke and non-stroke services is therefore of paramount importance.

1.5 POSITIVE PSYCHOTHERAPY [PP]

PP is a relatively new approach that has emerged from the field of positive psychology, defined as ‘the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups and institutions’ (Gable & Hadit, 2005, p.104). Although rooted within Positive Psychology, PP draws upon a range of ideas from other approaches including; Acceptance and Commitment Therapy [ACT], Compassion-Focused Therapy [CFT], Mindfulness, Dialectical Behaviour Therapy [DBT], person-centred therapy and Solution Focused Therapy [SFT] (Frude, 2014). Unlike traditional approaches, PP does not attempt to directly reduce distress and reported symptomology; instead it supports individuals to develop the skills to enhance their wellbeing, to use their personal strengths, and to enhance their resilience.

According to PP theorists there is a reciprocal relationship between distress and wellbeing, therefore, by enhancing psychological wellbeing, increasing experience of positive emotions, engagement in life and helping an individual to establish a sense of meaning and purpose, factors that maintain their distress and/or psychological problems will in turn be diminished (Frude, 2014).

Practising PP based techniques has been evidenced to improve an individual’s wellbeing (Seligman & Csikszentmihalyi, 2000) and physical health outcomes (Stewart & Yuen, 2011). This is of particular importance for stroke survivors whose resilience, optimism and personal strengths are key to their physical and psychological recovery. The efficacy of PP interventions within physical health conditions is explored in greater detail within the systematic review, later in this chapter.

1.5.1 The Development of Positive Psychology and PP

The concept of ‘positive psychology’ has been around for many years, its historical roots dating back to the ancient Greeks, Aristotle and Socrates who made reference to it throughout their work. It has also featured throughout the work of the humanistic psychologists Carl Rogers and Abraham Maslow (Evans, 2011). Maslow used the term to emphasise the need for psychology to focus on the potentials of humans rather than solely focusing on human deficiencies (Bridges & Wertz, 2009):

‘The science of psychology has been far more successful on the negative than the positive side; it has revealed to us much about man’s shortcomings, his illnesses, his sins, but little about his potentialities, his virtues, his achievable aspirations, or his psychological height.’
(Maslow, 1954, p. 354, as cited in Bridges & Wertz, 2009, p.10)

Since Maslow, there have been a number of others who have promoted ‘positive mental health’ (Jahoda, 1958) and happiness (Myers, 1992). However, it is Martin Seligman who has been instrumental in further developing the approach. He and his colleagues (Peterson and Csikszentmihalyi) have conducted a wealth of research examining the concept of positive psychology which has greatly contributed to the development of PP (Frude, 2014). Since its conception, positive psychology has been developed as a scientific approach that can be applied to a diverse range of settings (education, psychotherapy, counselling, life coaching, and organisations) for both individuals and organisations as a whole (Seligman, 2008).

1.5.2 Positive Psychology and Health

Anxiety, depression, anger and social isolation are all associated with an increased risk of poor physical health. The mere absence of these negative psychological factors does not equate to ‘good’ health and wellbeing, it is the role of positive states and traits that are essential (Park *et al.* 2014). Life satisfaction (Boehm *et al.* 2011; Diener & Chan, 2011), positive emotions (Cohen & Pressman, 2006), forgiveness (Lawler *et al.* 2005), optimism (Kim *et al.* 2011; Rasmussen *et al.* 2009), self-regulation (Kubzansky *et al.* 2011), vitality and zest (Boehm *et al.* 2011), life meaning and purpose (Boyle *et al.* 2009), helping others (Post, 2005), good social relationships (Holt-Lunstad *et al.* 2010) and spirituality (Powell *et al.* 2003) have all been identified as predicting good health. Stewart and Yuen (2011), provided further confirmation of this, adding that self-efficacy, hardiness, hope, internal locus of control, determination and resilience too play an important role in an individual’s health outcomes (Stewart & Yuen, 2011). For example, having a sense of purpose and meaning in life has been reported to be protective factor for myocardial infarctions for people with heart disease (Peterson, 2006). Furthermore, there is growing evidence for the role of personal strengths (e.g. self-efficacy, coping, resilience) on QoL for individuals with a range of physical health conditions including

Parkinson's disease (Robottom *et al.* 2012), traumatic brain injury [TBI] (deRoos-Cassini *et al.* 2010; McCauley *et al.* 2013) severe multiple trauma, and transplant patients (Tallman *et al.* 2010).

The relationship between optimism and physical health outcomes has received a considerable amount of research attention, it has been reported to improve QoL in people post acquired brain injury [ABI] (Ramanathan *et al.* 2011), slow down the onset of AIDS (Reed *et al.* 1999), predict better pulmonary functioning (Kubzansky *et al.* 2002), lower levels of pain (Achat *et al.* 2000), and predict a lower likelihood of having a stroke (Kim *et al.* 2011). This last finding, if true, has significant implications for the wellbeing of older adults and the UK economy; the implementation of optimism based interventions could be of cost saving benefit to health and social care services. Social support and positive relationships have also been reported to be associated with wellbeing, good health, longevity, less cognitive decline with aging, better management of chronic illnesses and greater resistance to infectious diseases (Cohen, 2004; Holt-Lunstad *et al.* 2010). Again, this highlights the wide ranging benefits of implementing psychosocial interventions within the community.

The aforementioned studies are largely based on prospective and retrospective analysis, but, there has been a recent increase in the number of studies evaluating the efficacy of PP interventions within a number of physical health conditions. It cannot be reliably concluded whether increasing psychological wellbeing directly results in better health outcomes, but it may lead to individuals living a healthier, more active and engaged life which may in turn improve their physical health. For example, interventions to increase positive affect has been associated with increased physical activity and medication adherence in individuals with asthma (Mancuso *et al.* 2012), coronary heart disease (Peterson *et al.* 2012) and hypertension (Ogedegbe *et al.* 2012). Similarly, interventions targeting positive emotions, life meaning, cognitive flexibility, social support, resilience and active coping skills have been reported to reduce cholesterol in adults (Burton *et al.* 2010).

1.5.3 Characteristics of Positive Psychotherapy [PP]

Unlike traditional psychotherapeutic approaches, freedom from disease, disorder, physical impairment and distress is not the goal of PP. Instead, psychological wellbeing is the key objectives of this approach. Experiencing positive emotions, having a sense of meaning and purpose, and fostering social relationships on a regular basis are all linked to increase QoL across the lifespan, all of which are key concepts relevant to PP interventions. Positive psychology adopts a holistic biopsychosocial approach to human functioning and recognizes that distress can arise from a number of sources that interact with one another; biological, psychological and environmental (Frude, 2014). Furthermore, PP is a trans-diagnostic approach that can be delivered individually or via group sessions (Seligman *et al.* 2006). PP can also be delivered in self-help format using books (Akhtar, 2012) or electronically (Schueller & Parks, 2012).

Given the large psycho-education component of PP, a group format lends itself well to this approach. Within a PP group the key principles of wellbeing, optimism and resilience can be taught didactically with the opportunity for clients to learn and practice the self-management skills to enhance their wellbeing within a supportive and encouraging environment. Moreover, groups provide the opportunity for clients to meet others who may experience similar difficulties to themselves, with whom they may identify with and go on to form supportive friendships.

Although PP interventions have a shared objective of enhancing clients' wellbeing, and resilience, and improving their QoL, the content of the interventions differs greatly across evaluation studies published within the relevant literature, as further explored within the systematic review. For example, some interventions focus on cognitive aspects such as noticing the positives ('three good things'), self-compassion/self-appreciation (recognising strengths, accomplishments) savouring and practising gratitude, whilst other interventions focus on more behavioural aspects of the approach such as engaging in meaningful activities in order to increase their experience of positive emotions.

1.5.4 Theoretical Background

1.5.4.1 Reciprocal Relationship Between Wellbeing and Distress

Positive psychology is an approach which strives to promote psychological wellbeing and QoL rather than focusing on symptom relief. As previously mentioned, positive psychology is underpinned by the assumption of a reciprocal relationship between wellbeing and distress, implying that an increase in psychological wellbeing will lead to a decrease in vulnerability to distress and a lessening of the suffering associated with the distress (Frude, 2014). Regardless of the source, distress has a negative impact on many areas of an individual's life, including their motivation, vitality, social engagement, self-confidence and overall outlook on life. Individually or in combination, these consequences are likely to maintain the distress, thus a system of interlinked 'vicious cycles'. Frude (2014) conceptualised this system as a "vicious daisy" within which the vicious cycles form the 'petals' around the central distress (Frude, 2014). A negative change in any of the 'petals' will increase the level of distress experienced which will in turn radiate across the system, negatively effecting each of the other 'petals'. PP strives to counteract a "vicious daisy" by enhancing the elements that promote wellbeing, thus a "virtuous daisy" or "wellbeing daisy" (Figure 1, Frude, 2014). As with the "vicious daisy", any positive change to the 'petals' will have a positive impact on wellbeing and radiate across the system. Any PP intervention designed to enhance wellbeing is likely to have a positive effect across all areas of the individual's life. For example, stroke survivors often report experiencing difficulty with self-confidence and motivation following their stroke. But, with the implementation of

a PP intervention that helps the individual to engage in activities that give them a sense of meaning and purpose or to teach them how to increase their experience of positive emotions, their self-confidence and motivation may in turn be enhanced.



Figure 1. The Wellbeing Daisy (Frude, 2014).

1.5.4.2 The PERMA model of Wellbeing (Seligman, 2011)

Within the physical health literature, increased activity, motivation, finding positive meaning and expressing emotions have all been reported to play a key role in helping an individual to psychologically adjust to their chronic condition and to reduce the likelihood of subsequent psychological difficulties (de Ridder *et al.* 2008). Not surprisingly, these factors overlap with the five elements deemed essential to experiencing lasting wellbeing and satisfaction in our lives; positive emotions, engagement, relationships, meaning and achievement/accomplishments (PERMA model of wellbeing; Seligman, 2011). Seligman (2011) supposes that these five elements can help individuals experience a happy, fulfilled and meaningful life. Furthermore, he proposed that personal strengths and virtues (i.e. social intelligence, humour, courage, integrity, and kindness) underpin each of these five elements. For example, using your personal strengths leads to a greater sense of meaning, positive emotions, and accomplishments (Seligman, 2011). As with Frude's (2014) 'wellbeing daisy', the PERMA model proposes that each of the elements are interlinked and can have a positive effect on each other (Figure 2, overleaf).

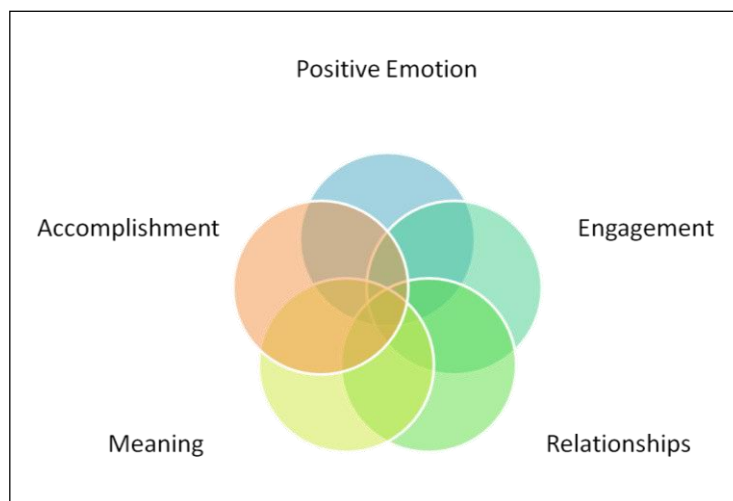


Figure 2 The PERMA Model of Wellbeing (Seligman, 2011).

Positive Emotion – this element of the model emphasises the need for us to experience positive emotions in our lives, including peace, awe, joy, hope, curiosity and love. Positive emotions have many benefits. For example, they help us to counteract negative emotions (Broaden and Build Theory; Fredrickson, 1998), build more resources to support our wellbeing, broaden our thinking and attention, enable us to be more open-minded and encourage us to be more creative and productive (Akhtar, 2012). Engagement – when we are fully engaged in a task, activity, hobby, project or situation we can experience something known as flow. ‘Flow’ is a state of optimal experience and extreme engagement, when we experience flow we can be fully emerged in the present moment. The more we experience this form of engagement the more likely we are to experience a sense of wellbeing, furthermore, flow enables us to learn, grow and nurture our skills, intelligence and emotional capabilities. Relationships - humans are “social beings”, we have a need for connection, love, physical and emotional contact with others. Building relationships with others is important to spreading and enabling positive emotions. Furthermore, having strong relationships and social connections can buffer the effect of stress on psychological wellbeing (Cohen *et al.* 2000). Meaning – having a sense of meaning and purpose is essential to living a fulfilled life and experiencing a sense of wellbeing. It provides us with the foundations to bounce back from adversity, and gives us a sense of direction which enables us to set goals and targets to aim for. Accomplishment/Achievement – accomplishments and achievements contribute to our ability to flourish. By setting realistic goals, mastering a skill and/or winning a competition we can motivate ourselves to engage in something meaningful and in turn experience a sense of satisfaction, pride and fulfillment. Furthermore, creating and working toward goals helps us anticipate and build hope and optimism for the future. Seligman’s colleagues subsequently developed a measure, the PERMA Profiler, which measures wellbeing in terms of these five proposed essential elements of wellbeing along with negative emotion and health (Butler & Kern, 2015). The advantage of this measure is that it can be used to inform the content of individual PP interventions and to establish which elements the individual could focus on to enhance their overall wellbeing.

1.5.4.3 *Broaden-and-Build Theory [BBT] of Positive Emotions (Fredrickson, 1998, 2001, 2004)*

Consistent with a number of theories, the BBT proposes that positive emotions significantly contribute to an individual's wellbeing and optimal functioning in the present and over time (Fredrickson, 2004). The theory proposes that the experience of positive emotions, even if brief, can broaden people's cognitions, attention and behaviours (thought-action repertoire) which in turn can build their personal resources and foster optimal functioning. For example, the experience of joy can encourage an individual to play, be creative and/or push the limits, whereas, a negative emotion is likely to constrict an individual's behaviour and thinking in order to keep them safe (Derryberry & Tucker, 1994). Research has indicated that negative states, such as anxiety and depression, predict narrowed attention and local biases in thinking styles, whereas positive states such as wellbeing predict broadened attention and an increased preference for variety (Derryberry & Tucker, 1994). Fredrickson and colleagues (2000) proposed that positive emotions can 'undo' negative emotions, they theorised that by broadening a person's thought-action repertoire this may in turn 'loosen the hold' a negative emotion has on the individual's thoughts and behaviours. Furthermore, that presence of positive emotions can speed up the biological (cardiovascular) recovery from adverse events, this suggesting that positive emotions can act as a resilience/protective factor (Fredrickson *et al.* 2000). Within this framework, there is a reciprocal relationship between resiliency and positive emotions; a number of studies have suggested that resilient people tend to have a more optimistic approach to life, are curious and open to new experiences. Positive emotions can also be the outcome of resilient coping in adversity (Block and Kremen, 1996). For example, resilient people use humour, optimistic thinking and creativity as ways of coping with adversity (Fredrickson, 2004). Conversely, those who experience more positive emotions become more resilient to adversity over time (Fredrickson & Joiner, 2002). An increase in the experience of positive emotions such as joy not only broaden and build an individual's thought-action repertoire, but, they also build an individual's personal resources, social resources and intellectual resources (Fredrickson, 2000).

1.5.4.4 *Psychological Wellbeing Model [PWB] (Ryff & Singer, 2008)*

There is considerable overlap between the PERMA model of wellbeing (Seligman, 2011) and Ryff and Burton's model of PWB, however, Ryff and Singer (2008) proposed that there are six key dimensions that define what it means to function optimally. Within their multidimensional model of PWB Ryff and Singer (2008) consider the theoretical foundations of each of the dimensions (Figure 3).

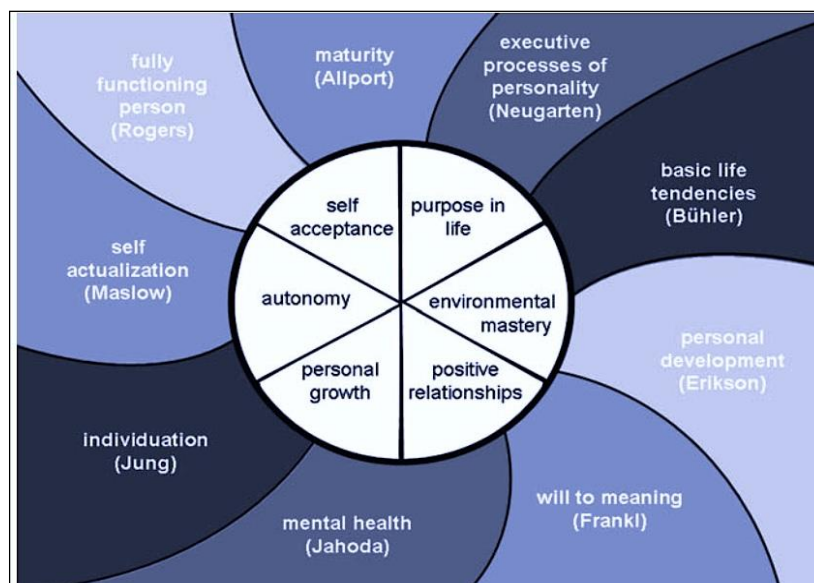


Figure 3. Core dimensions of psychological wellbeing and their theoretical foundations (Ryff & Singer, 2008).

Self-acceptance and positive self-regard are a central feature of optimal functioning, mental health, self-actualization and maturity. Life span theories such as that of personal development and executive processes of personality, as proposed by Erikson and Neugarten, also emphasized the importance of self-acceptance of oneself and of one's past. The acceptance of self and positive self-regard are of particular importance to stroke survivors who often struggle to accept their 'new self' with the acquired physical, cognitive and psychological difficulties post-stroke (Dixon *et al.* 2008). The concept of individuation (Jung) further emphasizes this need to accept and come to terms with aspects of the self, including those that we do not like, 'the dark side' or that which we recognise as our weaknesses. Thus, self-acceptance involves awareness of and acceptance of one's own strengths and weaknesses (Ryff & Singer, 2008).

The concept of personal growth refers to realizing and developing one's own potential. This is a feature of Maslow's theory of Self-Actualisation and Jahoda's positive conceptualization of mental health. Other theorists, including Rogers, described a 'fully functioning person' as someone who is open to the concept of continual development rather than having a 'fixed state' (Ryff & Singer, 2008). Furthermore, life-span theories (Buhler, Erikson, Neugarten, and Jung) emphasise the need for continued growth to overcome challenges faced at different stages of life (Ryff & Singer, 2008). Positive relationships with others is a key feature of many models and theories of wellbeing. It has a central role in maintaining our wellbeing and in enabling us to live a meaningful life. (Ryff & Singer, 2008). A number of theorists (for example Jahoda and Allport) emphasise the importance of being able to choose, create and have control over your environment, they suggest that this enables positive psychological functioning (Ryff & Singer, 2008).

Having a purpose in life is also a key feature in the PERMA model of wellbeing. This dimension draws upon a number of perspectives, including those from existential theorists such as Frankl who emphasised the importance of helping others to find meaning and purpose in their life, particularly at times of suffering. Jahoda emphasizes the importance of beliefs that give individuals a sense of purpose in life. In her analysis of what constitutes mental health. Allport's definition of maturity included having a clear comprehension of life's purpose, which included a sense of directedness and intentionality.

Many of the frameworks underpinning Ryff and Singer's (2008) model of PWB emphasise the importance of independence, self-determination and the regulation of one's own behaviour. For example, Maslow emphasised the autonomous functioning of self-actualisers, Rogers described the 'fully functioning person' as someone who has 'an internal locus of evaluation' and does not rely on others for approval or development of themselves, and finally life-span developmentalists such as Erikson, Neugarten, and Jung wrote about gaining freedom from the norms that govern everyday life later on in life, thus emphasizing the importance of independence and autonomy. This last point is an important consideration for people who have a chronic physical health condition such as a stroke and who may be dependent on others for assistance with daily living skills. It is vital that they are encouraged to identify an area of their life in which they can gain independence and autonomy.

1.5.4.5 Self-Determination Theory [SDT] (Ryan & Deci, 2000)

Ryan and Deci's (2000) theory of self-determination proposes that autonomy, relatedness and competence are three psychological needs that foster wellbeing rather than define it, as in Ryff and Singer's (2008) model of PWB. Furthermore, they suggest that we have an innate drive for these three psychological needs to be met in order to experience psychological wellbeing. Factors that enable an individual to meet these needs reportedly enhance the self, and motivate the individual to initiate behaviours that promote their wellbeing, whereas internal or environmental factors that prevent these needs being met result in a detrimental impact on the individual's psychological wellbeing (Deci & Ryan, 2000). This theory also has important implications for individuals who have had a stroke and may have residual physical or cognitive impairments that limit their ability to experience autonomy and to demonstrate competence.

1.5.5 Research Evidence for the Efficacy of Positive Psychology Interventions

Traditional healthcare systems, including those for mental health, typically focus on the treatment of disorders and diseases rather than the prevention of them. An alternative approach to understanding health is the concept of ‘positive health’. A positive approach to health looks beyond the absence of a disease and/or disorder, it encourages exploration of what it means to be healthy, to have psychological wellbeing and to live a fulfilling life within which positive functioning is regarded as a core element/outcome (Seligman, 2008), as captured by the World Health Organisation’s [WHO] definition of mental health:

‘Mental Health is a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make contributions to his or her community.’ (WHO, 2001, p.1)

Since the publication of Seligman and Csikszentmihaly’s (2000) seminal article *‘Positive psychology: An Introduction’* within which ‘positive health’ was discussed, there has been a rapid growth in the development of the approach, within mental health and physical health, and the number of research articles published.

1.5.5.1 Mental Health

As reported within the literature, there are a range of benefits associated with wellbeing. These include more meaningful relationships, increased social engagement, greater productivity at work, a reduced uptake of healthcare services (Keyes & Grzywacz, 2005), and a reduced risk of developing mental health difficulties (Keyes *et al.* 2010; Wood & Joseph, 2010). A number of studies evaluating the efficacy of PP interventions have reported enhanced wellbeing and, in some studies, a reduction in reported symptoms of depression amongst adults experiencing mental health difficulties (Bolier *et al.* 2013; Otake *et al.* 2006; Seligman *et al.* 2005; Sheldon *et al.* 2002; Sheldon & Lyubomirsky, 2006; Sin & Lyubomirsky, 2009). Of note, the majority of these interventions were delivered individually or via a self-help format.

Seligman and colleagues (2005) conducted a RCT within which they trialled five positive psychology interventions via a website (n=557). Each participant completed one of the interventions; gratitude visit, three good things in life, you at your best, using signature strengths in a new way, and identifying strengths. Increased immediate happiness was experienced following each of the five exercises, but, increased happiness remained 3 and 6 months later for only those who had completed the ‘three good things’ and ‘using signature strengths in a new way’ exercises (Seligman *et al.* 2005).

Although encouraging, one must note that the sample consisted of ‘largely well educated, white, and financially comfortable ‘mildly depressed’ individuals who were ‘motivated to be happier’ (Seligman *et al.* 2005, p.420), therefore, the sample is not generalisable. Seligman *et al.* (2006) conducted further evaluations of the efficacy of PP with adults experiencing ‘major depression’ and students experiencing ‘mild-moderate depression’ (Seligman *et al.* 2006). PP was delivered individually to the adults experiencing ‘major depression’ and in group format for the students. In both studies levels of depression were significantly reduced and wellbeing increased (Seligman *et al.* 2006).

Sin and Lyubomirsky (2009) conducted a meta-analysis of 25 studies evaluating the efficacy of positive psychology interventions for people with depression; a medium effect size ($r = 0.31$) was reported (Sin & Lyubomirsky, 2009). The most effective interventions were those in which participants self-selected (i.e. were not recruited via a referral from a healthcare professional or hospital), where the intervention was delivered individually, and when the interventions lasted longer than 8 weeks (Sin & Lyubomirsky, 2009). A number of methodological issues were identified with this meta-analysis. For example, both RCT’s and quasi-experimental studies were included within the meta-analysis, some studies included did not solely evaluate positive psychology interventions, for example some included mindfulness, thus the robustness of the results for pure positive psychology interventions is reduced. Despite the methodological limitations, similar findings were reported in Bolier *et al.’s* (2013) meta-analysis of positive psychology interventions; effectiveness of the intervention increased when it was delivered over a longer period and when it was delivered on a one-to-one basis. Unlike the previous meta-analysis (Sin & Lyubomirsky, 2009), effectiveness was increased when the participants were recruited via the healthcare system (Bolier *et al.* 2013). However, methodological limitations were identified within this meta-analysis: the quality of the studies included varied, there was an absence of randomisation procedure detail in the studies included, there was large heterogeneity across the studies, and there were small sample sizes within a number of the studies included.

In summary, although a number of methodological issues were identified within the literature, the evidence base as a whole suggests that PP interventions may be beneficial in enhancing wellbeing and reducing reported symptoms of depression.

1.5.5.2 *Physical Health Conditions*

Chronic physical health conditions, such as stroke, have a far reaching impact on the individual and the systems around them. Aside from the physical and psychological difficulties associated with stroke, the financial implications of this condition have significant implications for the UK economy.

What is more, the presence of co-morbid psychological difficulties such as depression increases the financial cost by 45% compared to those who do not experience co-morbid difficulties (Naylor *et al.* 2012). Therefore, it is proposed that utilising an approach such as PP, which has been reported to enhance individuals' psychological wellbeing and QoL across a range of physical health conditions (Park *et al.* 2013) will also be of significant financial benefit to services providing post stroke care. PP interventions have been evidenced to be effective across a range of physical health populations including brain injury (Andrewes *et al.* 2014; Cullen *et al.* 2016), acute cardiovascular disease (Huffman *et al.* 2011; Huffman *et al.* 2015), coronary heart disease (Sanjuán *et al.* 2016), breast cancer (Cerezo *et al.* 2014; Hashemi & Raghbi, 2014), pain (Howell *et al.* 2015), and HIV (Moskovitz *et al.* 2012). To the author's knowledge, no research to date, other than the previously discussed pilot study (McMakin *et al.* 2014), has evaluated the effectiveness of PP interventions solely within the stroke population.

Within the brain injury population, group and one to one PP interventions have been reported to increase happiness (Andrewes *et al.* 2014; Cullen *et al.* 2016) and reduce symptoms of anxiety (Cullen *et al.* 2016). Although these findings are encouraging, further research is required due to the methodological limitations identified; small sample sizes, use of an outcome measure not validated within the ABI population, and the absence of control group comparisons.

Similar mixed findings have been reported within acute heart disease (Huffman *et al.* 2011; Huffman *et al.* 2015): Huffman *et al.*'s. (2011) initial study reported an increase in optimism following the intervention, although this was not statistically significant. However, Huffman *et al.*'s (2015) second study reported increases in positive affect, a reduction in symptoms of anxiety and depression, but not change in optimism. These findings suggest that PP interventions may enhance positive affect and decrease negative affect even in those experiencing acute poor physical health. Although promising, one must consider the implications of the biased sample. All participants were recruited from a single medical ward. Secondly, although there was no control group, retrospective comparisons were made to subsequently recruited 'treatment as usual' participants.

Research conducted with people with breast cancer has reported that individuals experienced improved self-esteem, increased emotional intelligence, resilience, optimism, positive affect, wellbeing and happiness following attendance at a group PP intervention (Cerezo *et al.* 2014). Furthermore, they experienced an enhanced sense of post-traumatic growth [PTG], including personal strengths, new possibilities, appreciation of life and relationships within others (Hashemi & Raghbi, 2014). Although these findings are encouraging, there were a number of methodological limitations including no long-term follow up data, no comparison to other 'traditional' therapeutic interventions, and no measure of mood or negative affect (Hashemi & Raghbi, 2014). Lui *et al.* (2008) also examined the efficacy of a group based PP intervention for patients with breast cancer. Their

intervention integrated traditional Chinese medicine with PP and forgiveness therapy. A decrease in symptoms of anxiety was reported. Although suggestive of the benefits of PP one cannot reliably determine whether PP contributed to the reported reduction in anxiety due to the mixed approach used.

PP group based interventions have also been reported to be beneficial for individuals experiencing chronic pain. Positive changes in wellbeing, acceptance of pain (Study a) , a decrease in pain catastrophizing and an increase in hope (Study b) were all reported in Howell *et al's* (2015) study. However, within this study there were no measures of mood/negative affect, no control group comparisons, no long-term follow-up and a relatively small sample size that may have led to some of the analyses conducted being underpowered.

Moskowitz and colleagues (2012) evaluated the efficacy of individual PP for people newly diagnosed with HIV. Significant increases in positive affect and a significant reduction in reported negative affect were reported. These findings offer the promise that PP interventions may be beneficial for individuals newly diagnosed with a chronic and/or life-changing physical health condition. However, before generalisations can be made, improvements to the design of the study are required (e.g. larger sample size and the use of a control group).

1.5.5.3 Limitations of PP research

Within the literature it has been reported that PP interventions may be effective in improving the psychological wellbeing of individuals with chronic physical health conditions and mental health difficulties. Although these findings are encouraging, a number of methodological limitations prevail (e.g. small sample size, absence of control group, recruitment methods, no long-term follow-up, heterogeneous samples, variability in content and duration of interventions) which limit the quality and generalisability of the study findings. Therefore, there is a need for high quality studies employing a sound methodological design to further evaluate the efficacy of PP interventions, particularly with those with physical health conditions. Disappointingly, despite their paramount role in supporting individuals with chronic physical health conditions and mental health difficulties, none of the studies reviewed included carers (BPS, 2010). Given the evidence that carers also experience high levels of psychological distress (SA, 2013; van der Port *et al.* 2006), it is imperative that their psychological needs are met and that they are included within future research studies.

1.5.6 Section Summary

Throughout this chapter there has been a focus on the importance of wellbeing and its reciprocal role with physical and psychological functioning and a review of the evidence base for the efficacy of interventions to improve individuals psychological wellbeing. Although a new and developing approach, there is encouraging evidence to suggest that positive psychotherapy [PP] is beneficial for individuals with both physical and mental health conditions. Seligman's PERMA model of wellbeing, Fredrickson's Broaden-and-Build model and the proposed reciprocal relationship between wellbeing and distress provide a theoretical grounding for processes involved in this approach. As previously identified, although the findings are encouraging and suggestive that PP is an effective intervention for enhancing wellbeing, one must not overlook the methodological limitations within the current research. Therefore, further, higher quality and well-designed studies are required to evaluate the efficacy of PP interventions. The following section is a systematic review of the current evidence base for the efficacy of PP in chronic physical health conditions.

1.6 SYSTEMATIC REVIEW

1.6.1 Systematic Search

1.6.1.1 Search Strategy

The author conducted a systematic review of the literature to answer the following question and to inform their empirical study: *'What is the evidence for the efficacy of positive psychotherapy interventions in stroke?'*. An initial review of the literature was conducted, but, only one relevant study was identified (Cullen *et al.* 2016). The search was therefore broadened to include positive psychology interventions in chronic physical health conditions: *'What is the evidence for the efficacy of positive psychotherapy interventions in chronic physical health conditions?'*.

Key search term definitions:

For the purpose of this systematic review *positive psychotherapy interventions* were defined as psychological interventions (group -based or 1:1) within which participants were taught a range of skills to improve their psychological wellbeing. Skills taught may include practising gratitude, focusing on values, recognising and using strengths, practising optimistic thinking, random acts of kindness, noticing positive experiences, savouring, recognising personal growth, engaging in meaningful activities, and hope based strategies. Within this systematic review *chronic physical health conditions* were defined as physical health diseases/disorders/syndromes/conditions that were persistent and/or long in duration (beyond 12 weeks), typically have no cure and have a negative impact upon the individual's functioning (physically and/or psychologically). The *'chronic physical health conditions'* included both communicable (e.g. AIDS) and non-communicable diseases (e.g. diabetes, heart disease, dementia stroke, cancer, chronic pain) and acquired brain injuries within which the damage caused is irreversible (including traumatic brain injuries).

The following databases were individually searched on January 30th 2016 and again on April 29th 2016: (from 1860 to date) MEDLINE, AMED [Allied Health and Complementary Medicine], EMBASE, PsycArticles Full Text, PsycINFO and CINAHL.

Following discussions with the academic supervisor and a narrative review of the current research literature, key search terms were identified. Key search terms related to Positive Psychology were: Positive Psychology (main heading), positive therap*, positive psychotherapy*, positive psychotherap*, positive psych* intervention* and positive intervention*. No other search terms were used to describe positive psychology as they did not capture this concept and led to a broad search. As it was already known that there was a limited evidence base for the efficacy of positive psychotherapy interventions, no chronic physical health conditions were included within the search. Those studies that did not include participants with chronic physical health conditions were excluded during the

review process. The key search terms were combined using the Boolean operator ‘OR’ to generate a total result for ‘Positive Psychology’ (e.g. Positive Psychology OR positive therap*OR positive psychotherapy*OR positive psycho-therap* OR positive psych* intervention* OR positive intervention*). The search results were then combined with the key search terms: intervention* OR group* OR treatment* OR session* OR class* OR activit* OR program* using the Boolean operator ‘AND’ (i.e. Positive Psychology OR positive therap*OR positive psychotherapy*OR positive psycho-therap* OR positive psych* intervention* OR positive intervention* AND intervention* OR group* OR treatment* OR session* OR class* OR activit* OR program*).

Given the current small, but developing, literature base for the efficacy of PP interventions, no further search terms/limits were required. The combined search terms identified 1812 articles from the abstracts and titles, of which 73 were duplicates and subsequently removed. The titles of the remaining 1739 articles were reviewed to identify whether they met the inclusion/exclusion criteria. The articles that could not be excluded by their title alone were further screened via a review of the abstract and of the full article if its relevance remained unclear (see Figure 4).

The author acknowledges that the search strategy used may have missed articles that did not contain the key search terms in the title and/or abstract. However, the author reviewed the reference lists of the ‘relevant’ papers and contacted key authors within the field, authors of relevant conference abstracts, and conducted a Google scholar search to identify any further studies. A further six articles were identified and reviewed according to the inclusion/exclusion criteria.

1.6.1.2 Search Inclusion and Exclusion Criteria

When reviewing the search results the following inclusion and exclusion criteria was applied:

Inclusion criteria applied:

- Papers were available in English
- Peer reviewed papers
- Original articles
- Positive Psychology intervention used (as defined above)
- Participants had a chronic physical health condition (as defined above)
- Participants were over aged 18 years
- Studies used either a quantitative and/or qualitative design

Exclusion criteria applied:

- Book chapters
- Conference abstracts

- Theoretical papers
- Single-case studies
- Studies that did not evaluate the efficacy of the positive psychology intervention
- Mental health ‘disorder’ focused interventions (i.e. for psychosis, anxiety, depression)
- Interventions that did not include any face-to-face or phone-based interaction with a ‘therapist’/interventionist (i.e. computer/video-based interventions)

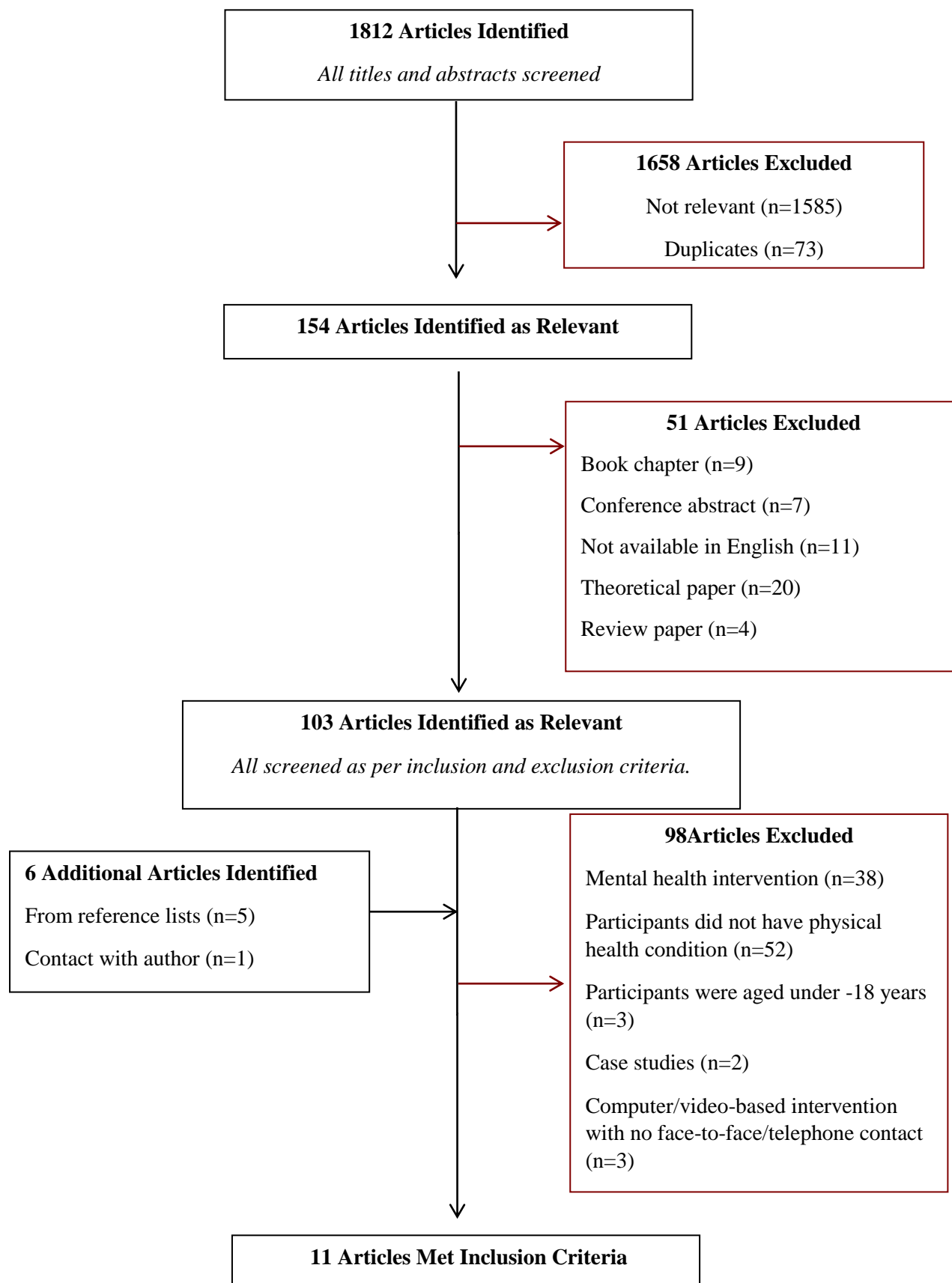


Figure 4. Flow chart of the systematic review process undertaken.

1.6.1.3 Review of Papers Identified

During the initial screening process (reviewing all of the title and subsequent abstracts/full papers, if required), 1585 papers were identified as ‘not relevant’ and subsequently excluded. Examples of ‘not relevant’ papers included those that reported on ‘positive’ medication interventions and ‘positive’ drug therapy. A further 51 articles were excluded as they were; book chapters (n=9), conference abstracts (n=7), not available in English (n=11), theoretical papers (n=20) or review papers (n=4). The remaining 103 articles were further screened and contact was made with key authors identified in reference lists, conference abstract authors, and a subsequent search of Google scholar was conducted. This yielded a further 6 articles for review according to the inclusion/exclusion criteria. Of the 109 articles, a further 98 articles were excluded according to the inclusion/exclusion criteria; mental health interventions (n=38), no chronic physical health condition (n=52), participants aged under 18 years (n=3), case studies (n=2), and interventions were computer/video-based with no face-to-face/telephone contact (n=3). In total, eleven articles were identified as meeting the inclusion criteria and were included in the systematic review. The following section provides an overview of the eleven studies included within the review. A summary of the key features of each of the studies can be found in Appendix A. The literature base for the efficacy of positive psychology interventions remains in its infancy, particularly within the physical health population, therefore, the content of the psychology interventions included within the review are not homogenous, nor are the design or analysis methodologies employed. This will be further discussed within section 1.6.4.3, “limitations of the studies”.

1.6.2 Overview of Included Studies

The eleven articles included in the systematic review varied in a number of ways including the research approaches used, the target population (chronic health condition), recruitment procedures, context/setting of the study, sample sizes, type of intervention used, methods of analysis, and the country of origin. A summary of the characteristics of each of the eleven articles can be found in Appendix A.

Two studies were conducted in Scotland (Andrewes *et al.* 2014; Cullen *et al.* 2016), two in Canada (Howell *et al.* 2015; Larsen *et al.* 2015), four in America (Huffman *et al.* 2011; Huffman *et al.* 2015; Moskowitz *et al.* 2012; Van Haitsma *et al.* 2013), two in Spain (Cerezo *et al.* 2014; Sanjuán *et al.* 2016), and one in Iran (Hashemi & Raghibi, 2014).

Of the eleven articles, ten used a quantitative methodology (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Hashemi & Raghibi, 2014; Howell *et al.* 2015; Huffman *et al.* 2011; Huffman *et*

al. 2015; Moskowitz *et al.* 2012; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013) and one used a qualitative approach (Larsen *et al.* 2015).

Four of the studies reviewed were conducted in a hospital setting, i.e. medical wards and a residential rehabilitation hospital (Andrewes *et al.* 2015; Huffman *et al.* 2011; Huffman *et al.* 2015; Sanjuán *et al.* 2016), the remaining six were conducted within a community setting, i.e. outpatient clinics, community sites and a residential nursing home (Cerezo *et al.* 2014; Cullen *et al.* 2016; Howell *et al.* 2015; Larsen *et al.* 2015; Moskowitz *et al.* 2012; Van Haitsma *et al.* 2013). The setting and recruitment of one study was not made explicit within the article (Hashemi & Raghabi, 2014).

The recruitment procedures varied across the articles reviewed. Participants were recruited via community adverts/websites/leaflets/public presentations/newsletters (Howell *et al.* 2015; Larsen *et al.* 2015; Moskowitz *et al.* 2012), opportunistic sampling (Andrewes *et al.* 2014; Huffman *et al.* 2011; Huffman *et al.* 2015; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013), established support groups (Cerezo *et al.* 2014), and outpatient clinics/waiting-lists (Cullen *et al.* 2016).

The populations recruited for the studies all had physical health conditions. These included; acquired brain injuries (including strokes) (Andrewes *et al.* 2014; Cullen *et al.* 2016), breast cancer (Cerezo *et al.* 2014; Hashemi & Raghabi, 2014), chronic pain (Howells *et al.* 2015; Larsen *et al.* 2015); acute cardiovascular disease (Huffman *et al.* 2011), acute coronary syndrome (Huffman *et al.* 2015); coronary heart disease (Sanjuán *et al.* 2016); HIV (Moskowitz *et al.* 2012); and dementia (Van Haitsma *et al.* 2013). Within the quantitative studies the sample sizes ranged from 10-180 participants (N=59.4) whereas the qualitative study contained only 12 participants.

Each of the studies reviewed incorporated different aspects of PP within the intervention. For example, one focused on hope and strengths (Larsen *et al.* 2015), another incorporated techniques to enhance strengths and gratitude (Andrewes *et al.* 2014).

Of the eleven studies, six evaluated group-based PP interventions (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Hashemi & Raghabi, 2014, Howell *et al.* 2015; Larsen *et al.* 2015; Sanjuán *et al.* 2016); three evaluated individual face-to-face positive psychology interventions (Cullen *et al.* 2016; Moskowitz *et al.* 2012; Van Haitsma *et al.* 2013), and two evaluated individual interventions facilitated via a workbook and weekly telephone reviews (Huffman *et al.* 2011; Huffman *et al.* 2015).

The duration of the interventions ranged from 5-14 sessions. One intervention taught eight skills over five sessions (Moskowitz *et al.* 2012), four studies used a six-session design (Howell *et al.* 2015; Larsen *et al.* 2015; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013), four studies used an eight session

design (Hashemi & Raghibi *et al.* 2014; Cullen *et al.* 2016; Huffman *et al.* 2011; Huffman *et al.* 2015), one study used a 12 session design (Andrewes *et al.* 2014), and one employed a 14 session design (Cerezo *et al.* 2014).

Different methods of data analysis were used across the studies. A number of studies used a combination of statistical analysis methods including: *t*-tests (Cerezo *et al.* 2014; Hashemi & Raghibi, 2014; Howell *et al.* 2015, Huffman *et al.* 2015; Moskowitz *et al.* 2012), ANOVA (Andrewes *et al.* 2013; Howell *et al.* 2015; Sanjuán *et al.* 2016), ANCOVA (Andrewes *et al.* 2014), MANOVA (Howell *et al.* 2015), MANCOVA (Van Haitsma *et al.* 2013), General Linear Modelling (multivariate/univariate) (Van Haitsma *et al.* 2013) Wilcoxon Signed Rank (Andrewes *et al.* 2014), Cohen's *d* (Huffman *et al.* 2011; Huffman *et al.* 2015), and interpretive enquiry analysis (Larsen *et al.* 2015).

1.6.3 Quality of the Studies

Historically, systematic reviews have heavily focused on quantitative studies and have not included both quantitative and qualitative research within the same review due to concerns about how to evaluate and compare the quality of two different designs (Dixon-Woods *et al.* 2005). However, by including both methodologies within a systematic review the research findings will be maximised and the experiences of the service-users can be incorporated, which may in turn enhance clinical relevance (Ring *et al.* 2010; Harden, 2010). Given the small number of studies evaluating the efficacy of positive psychology interventions within physical health, only one qualitative study was included within this review. However, it is hoped that the inclusion of these has enhanced the review and may greater inform the subsequent empirical study undertaken.

The critical appraisal of the eleven studies was guided by the use of two quality frameworks, a quantitative methodology framework (SURE, 2013a, see Appendix B) and a qualitative methodology framework (SURE, 2013b, see Appendix C), both developed by Cardiff University's Support Unit for Research Evidence [SURE]. The frameworks were used to assess the credibility of the studies included in the systematic review; each included a checklist of measures of quality that incorporated a number of quality checklists including the 2010 version of the Critical Appraisal Skills Programme (CASP, 2010), a previous Health Evidence Bulletins Wales checklist and the NICE Public Health Methods Manual (NICE, 2012).

Checklist items included within the quantitative quality framework (SURE, 2013a) included; identifying if the study addressed a focused question; if the population was randomised; if allocation

to the intervention/comparator group was concealed; if participants/investigators were blind to group allocation; if the interventions (and comparisons) were well described and appropriate; if ethical approval was sought and received; if a trial protocol was published; if the groups were similar at the start; if the sample size was sufficient; if participants were properly accounted for (i.e. follow-up rate); how the data was analysed; if the outcome measures were reliable; if any sponsorship/conflict of interest was reported; and if the author identified any limitations. This framework was specifically developed for RCTs and other experimental studies. Checklist items included within the qualitative quality framework (SURE, 2013b) include; identifying whether the study addressed a focused question; if the qualitative method used was appropriate; if the sampling strategy is clearly described and justified; if the relationship between the researcher and participants was explored; if ethical issues were discussed; if the findings were credible; if any sponsorship/conflict of interest was reported; and if the author identified any limitations.

The two quality frameworks used employed the same scoring categories to rate the quality of the studies within which the following categories were used; *Yes* (i.e. criterion is met), *No* (i.e. criterion is not met) and *Can't tell* (i.e. it is unclear from article if this criterion has been met or not). A numerical coding system was also incorporated to enable an overall quality score to be calculated; Yes (good) = score of 2; Can't tell (mixed) = score of 1; No (poor) = score of 0. If the checklist item was not reported within the study this was recorded as *nr* and/or if the item was not applicable to the study this was recorded as *n/a*.

To enhance the reliability of the overall quality score calculated, the studies were discussed with the author's academic supervisors (RM and NF) who independently rated the quality of the studies. The two tables in Appendix B and Appendix C depict the quality frameworks used to assess the studies included within the review and the overall quality scores assigned. The following section provides a synthesis of the eleven studies.

1.6.4 Synthesis of the Studies

In an attempt to address the review question, the main findings and key methodological limitations of the eleven studies have been synthesised in the following section. As for mentioned, there is considerable variance in how PP has been used within each of the intervention studies, this will be reviewed and the implications for the overall findings and limitations will be considered.

1.6.4.1 Heterogeneity of Positive Psychotherapy

There was much variability across the studies that were included in the systematic review. For example, six studies evaluated group interventions (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Hashemi & Raghabi, 2014, Howell *et al.* 2015; Larsen *et al.* 2015; Sanjuán *et al.* 2016) whereas the other five studies evaluated individual interventions (Cullen *et al.* 2016; Moskowitz *et al.* 2012; Van Haitsma *et al.* 2013; Huffman *et al.* 2011; Huffman *et al.* 2015).

Of the studies included within the systematic review, some provided in-depth descriptions of the interventions implemented (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Howell *et al.* 2015; Larsen *et al.* 2015; Moskowitz *et al.* 2012; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013), whilst others provided a brief overview of the content of the intervention (Cullen *et al.* 2016; Huffman *et al.* 2011; Huffman *et al.* 2016; Hashemi & Raghabi, 2014).

Across the studies a range of professionals and non-professionals facilitated the interventions; one was facilitated by two counselling psychologists (Howell *et al.* 2015); one by a ‘trial therapist’ (Cullen *et al.* 2016); one by a psychologist (Sanjuán *et al.* 2016); two by a non-descript ‘therapist’ (Cerezo *et al.* 2014; Hashemi & Raghabi, 2014); two by ‘interventionists’ - a social worker (Huffman *et al.* 2011) or doctoral-level psychologists (Huffman *et al.* 2015); one by nursing assistants (Van Haitsma *et al.* 2013); and one by two psychologists (Larsen *et al.* 2015). Three studies did not report who facilitated the interventions (Andrewes *et al.* 2014; Moskowitz *et al.* 2012). The facilitators’ level of experience and the amount of training received also varied across the studies. For example, the facilitators leading the Hope-Focused group were both experienced counselling psychologists with two years of experience delivering the intervention (Howells *et al.* 2015; Larsen *et al.* 2015). Within other studies, facilitators were less experienced but followed structured protocols (Van Haitsma *et al.* 2013); read treatment manuals, books associated with the intervention, attended sessions on positive psychology, partook in role plays, and participated in meetings with the intervention developers (Huffman *et al.* 2011; Huffman *et al.* 2015). No details regarding the experience and training of facilitators were reported in the remaining studies reviewed (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Moskowitz *et al.* 2012; Hashemi & Raghabi, 2014; Sanjuán *et al.* 2016).

There was a lack of consistency regarding the length and duration of the PP interventions delivered. For example, the range of durations across the group interventions included 14 weekly 2-hour sessions (Cerezo *et al.* 2014), 12 weekly sessions – duration not reported (Andrewes *et al.* 2014), 8 weekly sessions –duration not reported (Hashemi & Raghabi, 2014), 6 weekly 1-hour sessions (Sanjuán *et al.* 2016), and 6 weekly 2-hour sessions (Howell *et al.* 2014). The individual interventions also varied in length and duration. They included: eight weekly sessions – duration not reported (Cullen *et al.* 2016), 8 weekly 15/20-minute telephone reviews (Huffman *et al.* 2011;

Huffman *et al.* 2015), five weekly sessions lasting 45-60 minutes each (Moskowitz *et al.* 2012), and a three-week intervention period with on average six 30-minute sessions (Van Haitsma *et al.* 2015).

As well as differences in duration and content, the review included studies evaluating the efficacy of PP interventions across a range of physical health conditions. Although such variance can be problematic when making direct comparisons between studies, it does suggest that PP is a trans-diagnostic approach that may be beneficial to people with a range of physical health conditions and mental health difficulties (Seligman *et al.* 2006).

The above narrative highlights the fact that there is large variability in how PP interventions are conceptualised and delivered. Such variability within the literature may have a detrimental effect on how PP interventions are perceived; it may lead to misleading generalisations about the efficacy of the approach and in turn effect the perceived quality of this developing evidence base. It is therefore important that the heterogeneity of the studies is taken into consideration when drawing conclusions about the efficacy of PP interventions.

1.6.4.2 *Reviews of the Study Findings*

The evidence base for the efficacy of PP interventions in physical health is in its infancy. The majority of studies published have examined the efficacy of the approach within healthy participants and/or those experiencing mental health difficulties such as depression. This next section reviews and synthesises the findings of the eleven physical health studies. Of the studies included within the systematic review, the majority reported some significant benefits of PP interventions (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Hashemi & Raghabi, 2014; Howell *et al.* 2015; Huffman *et al.* 2015; Moskowitz *et al.* 2012; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2015), only one paper, a feasibility/pilot study, reported no significant results (Huffman *et al.* 2011).

Cerezo *et al.* (2014) reported positive benefits of a group PP intervention for breast cancer patients in comparison to the waitlist control. The experimental group reported higher scores on well-being, emotional intelligence, optimism, resilience, and self-esteem ($p < 0.05$). Although encouraging, one must be cautious in making generalisations from these findings as there were a number of methodological issues identified; no long-term follow up data, biased sample, and no comparison to other 'traditional' therapeutic interventions.

The Hashemi and Raghibi (2014) study also evaluated the efficacy of a PP group for women with breast cancer; but, their outcome focus was post-traumatic growth (PTG). They reported a significant difference in mean score in four of the five components of the Post Traumatic Growth Inventory

(PTGI) following attendance at the group; new possibilities ($p=0.001$); personal strengths ($p=0.001$); appreciation of life ($p=0.041$) and relationship with others ($p=0.008$). No significant difference in spiritual growth scores was reported ($p=0.391$). However, a number of methodological limitations were identified in this study which impact the overall quality and generalisability. There was no long-term follow-up, no control group, an unclear recruitment and sampling procedure, no analysis or reporting of the Munsch Happiness Scale and Strengths outcomes used, and no measure of mood or negative affect pre and post attending the group.

Howell *et al.* (2015) evaluated the efficacy of a group PP intervention (pilot study (1a) and a main study (1b)), for people experiencing chronic pain. Significant positive changes in acceptance of pain were reported ($p<0.05$) in the pilot study, but, no significant change in perception of hope ($p>0.05$) was observed. Positive changes in wellbeing, a decrease in pain catastrophizing and an increase in hope were reported ($p<0.01$) in the main study. A number of methodological issues limit the quality and generalisability of these findings, namely the absence of any measure of mood/negative affect, lack of control group comparisons, no long-term follow-up of participants to establish longer-term benefits, biased sampling/recruitment process and a relatively small sample size that may have led to some of the analyses conducted being underpowered.

Andrewes *et al.* (2014) reported mixed findings of the efficacy of group PP for brain injury patients with complex needs and ‘challenging behaviours’. The intervention group reported a significant increase in happiness immediately following the ‘*Three Good Things*’ intervention and at the end of the 12-week programme, but, there was no significant interaction effect between the pre-intervention happiness scores and the 12-week post intervention happiness scores ($F(1,6) = 4.20, p=0.08$). Following the ‘*Signature Strengths*’ intervention, participants in the intervention group expressed a more positive sense of self, but this was non-significant. A number of limitations were identified within this study which affect the generalisability of the findings; small sample size, no long-term follow up, no 12-week post intervention distress scores reported, sample not representative of both genders (90% males), and finally the AHI (used to measure happiness) has not been validated in the brain-injury population.

Sanjuán *et al.* (2016) evaluated the efficacy of a group-based PP intervention patients who had experienced their first acute cardiac episode. A significant increase in positive affect ($F(1,49) = 3.98, p<.05$) and a significant decrease in negative affect ($F(1,49) = 4.45, p<.05$) was observed following attendance at the PP group. Furthermore, a significant reduction in hostility was reported following attendance at the PP group, ($F(1, 49) = 4.13, p<.05$). Of note, no significant changes in reported depressive symptoms were observed following attendance at the PP group. These findings provide further support for the efficacy of a PP intervention for patients with coronary heart disease and

suggest that such interventions may increase psychological wellbeing and decrease negative affect and hostility. Such findings have clinical implications for cardiac patients given the fact that ‘the presence of negative emotions and hostility may worsen the prognosis for those suffering from coronary heart disease’ (Boyle *et al.* 2005, as cited in Sanjuán *et al.* 2016, p.78). One must be cautious when interpreting these findings and in making generalisations to the whole population as the participants were recruited from one cardiac rehabilitation unit, females were underrepresented in the sample and there was unequal attendance at the PP sessions which may have skewed the findings reported. Furthermore, no follow-up assessments were conducted to assess the longevity of the reported benefits of attending the PP group.

Cullen *et al.* (2016) were also interested in the feasibility of PP interventions within the brain injury population. However, their intervention was delivered to individual participants across eight sessions rather than in a group format. Their samples comprised participants who had experienced an acquired brain injury [ABI] (including stroke). As detailed within the supplementary paper, participants who received the intervention reported a greater increase in happiness ($p=0.050$), and a greater decrease in symptoms of anxiety ($p=0.030$) than those who did not receive the interventions. The authors concluded that the treatment programme was “*feasible to deliver and was acceptable to patients*”. The findings from this study are encouraging and indicate that PP may be beneficial for the ABI population, but, one must be cautious when generalising these findings as a number of methodological issues were identified; use of a measure not yet validated within the ABI population and small sample size which limited the analysis of the data collected due to a lack of power. A strength of this study was the inclusion of a 20-week follow-up assessment to assess the long-term benefits of the intervention.

Huffman *et al.* (2011) conducted a pilot study of individual PP interventions for patients with acute cardiovascular disease. Although a positive increase in optimism was reported, this was not statistically significant. Huffman *et al.* (2015) further assessed the efficacy of the intervention with acute coronary syndrome patients, and reported moderate effect sizes in improvement of positive affect ($d=0.46$, $p=0.053$), anxiety and depression ($d=0.69$, $p=0.008$). In contrast, optimism remained unchanged from baseline to follow-up ($d=0.08$, $p>0.10$). These findings are encouraging and suggest that PP interventions may enhance positive affect and decrease negative affect in individuals experiencing chronic and acute poor physical health. Although promising, one must consider the implications of the unrepresentative sample: all participants were recruited from a single medical ward. Also, although there was no concurrently recruited control group, retrospective comparisons were made to subsequently recruited ‘treatment as usual’ participants.

Moskowitz and colleagues (2012) evaluated individual PP for people newly diagnosed with HIV. Consistent with Huffman *et al.*'s (2015) findings, an increase in positive affect ($p=0.016$) and a significant decrease in negative affect ($p=0.016$) was observed. Unfortunately, no control group was included in this pilot study. However, comparisons were made to individuals from the same population who were engaged in a subsequent treatment as usual study in which the same outcome measures were administered. The findings from this study suggest that a PP intervention may be feasible for people newly diagnosed with a chronic or life-changing physical health condition and may in turn increase their positive affect and decrease their negative affect. Despite the promising findings, a number of methodological limitations were identified. These include, small sample size and the implications this may have had on the effect sizes reported, i.e. inflated. Secondly, participants were paid if they attended all of the intervention sessions and this may have increased the likelihood of demand-characteristics and led to participants over-reporting of improvements.

Van Haitsma *et al.* (2015) investigated the effects of individualised PP interventions [IPPI] for people with dementia in comparison to usual care [UC] provided in a residential nursing home and usual care plus an attention control [AC] intervention. Increased instances of positive affect (more alert, more pleasure), more engagement, more positive touch and more positive verbal behaviour were observed in both intervention groups (IPPI and AC). Although promising, no statistically significant increase in positive affect or decrease in negative affect were reported. Furthermore, one must consider the limitations of the study, which in turn impact the quality of this study. Firstly, the sample used is not generalizable to all people with dementia as the sample was comprised of only Caucasian, Jewish, older adults living in one residential home and did not include older adults living in other community settings. Secondly the data collection was purely observational which may have introduced some bias as some data may have been missed.

Larsen *et al.*'s (2015) paper qualitatively explores participants' experiences of a hope and a strength based intervention that featured within Howell *et al.*'s. (2015) chronic pain study reviewed above (Howell *et al.* 2015). Larsen *et al.* (2015) used interpersonal process recall [IPR] procedures to elicit there and then experiences from the participants and invited them to discuss unspoken and overt thoughts and feelings that occurred during the hope and strength intervention session. Four primary themes related to hope were identified using interpretative enquiry analysis; awareness, comparison, communion and connection. Participants reported a shift in perspective or a new awareness of their strengths and a sense of belonging. These findings offer important insights into individuals' experiences of PP interventions, in particular their experience of strength and hope based interventions. The findings highlighted key considerations that are central to the efficacy of group based interventions. These include a sense of belonging, honesty and openness. One must acknowledge the potentially biased sample used within this study in that all participants were

recruited via chronic pain support agencies and may therefore already have some active coping strategies. Secondly, one cannot underestimate the therapeutic benefits obtained via the highly experienced psychologists facilitating the group. Such benefits may not be experienced by participants receiving a similar intervention delivered by less-experienced facilitators (Couch & Childers, 1987).

The review of the study findings highlighted a vast range of potential benefits of individual and group-based PP interventions including; increased well-being, emotional intelligence, optimism, resilience, and self-esteem (Cerezo *et al.* 2014); increased positive affect and decreased negative affect (Huffman *et al.* 2015; Moskowitz *et al.* 2012); decreased levels of anxiety (Cullen *et al.* 2016) increased ‘happiness’ (Cullen *et al.* 2016; Andrewes *et al.* 2014); increased instances of positive affect, pleasure, engagement, positive touch and positive verbal behaviour (Van Haitsma *et al.* 2015); positive changes in wellbeing and acceptance of pain (Howell *et al.* 2015, 1a); decrease in pain catastrophizing and an increase in hope (Howell *et al.* 2015, 1b). The qualitative study substantiated some of the above reported benefits and provided a richer understanding of participants’ experience of a PP intervention, in particular hope and strength based interventions. Larsen *et al.* (2015) identified a number of additional benefits of the group-based intervention including fostering of hope, building relationships, feeling less isolated and feeling supported, all of which are fundamental to any group-based intervention. As previously mentioned, a number of the studies reported potential benefits that were in the direction anticipated, but, were not statistically significant. Such findings may be associated with methodological limitations.

1.6.4.3 Limitations of the Studies

As alluded to throughout this systematic review, the evidence base for the efficacy of PP within physical health is varied. There are vast differences in the research approaches and study designs, samples included, intervention format, intervention content, outcome measures used and the reported benefits of the interventions themselves. Such heterogeneity within a small, yet emerging research area may have a detrimental impact on the overall perceived quality of the research, which may consequently have a bearing on the application of this approach within the clinical setting.

With regard to the research approach and study designs, ten studies used a quantitative approach to the research question (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Hashemi & Raghibi, 2014; Howell *et al.* 2015 (1a and 1b); Huffman *et al.* 2011; Huffman *et al.* 2015; Moskowitz *et al.* 2012; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013), and one solely used a qualitative approach (Larsen *et al.* 2015). Furthermore, within each of these approaches (quantitative/qualitative) a range of study designs were employed; six studies employed an experimental design in which participants

were randomly assigned to the intervention group or the control group (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Huffman *et al.* 2011; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2013), whereas the other five studies utilised a quasi-experimental design in which there were no control groups (Hashemi & Raghibi, 2014; Howell *et al.* 2015 (1b); Huffman *et al.* 2015; Larsen *et al.* 2015; Moskowitz *et al.* 2012). Of the eleven studies reviewed, four were feasibility/pilot studies (Howell *et al.* 2015 (1a); Cullen *et al.* 2016; Huffman *et al.* 2011; Moskowitz *et al.* 2012). There are advantages and disadvantages of both study designs, but, the absence of a control group or comparison group undoubtedly impacts upon the quality and generalisability of the study findings. Four of the studies that included a control group used a treatment as usual/waiting-list control group (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Cullen *et al.* 2016; Sanjuán *et al.* 2016). Although beneficial, the inclusion of a treatment as usual control group is not without its limitations as although positive effects may be reported post-intervention, one cannot assume that those effects are unique to that approach. However, one may infer that the intervention is ‘better’ than no intervention. The inclusion of a treatment as usual group and an alternative intervention group such as an attentional control group or relaxation group may further strengthen the quality of the findings.

The randomisation of participants to the intervention or control groups was not consistent across the studies. Some did not report how participants were randomly allocated (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Huffman *et al.* 2011) and three studies described the randomisation process in detail (Cullen *et al.* 2016; Sanjuán *et al.* 2016; Van Haitsma *et al.* 2015).

The format of the interventions varied across the studies. Some evaluated individual interventions whereas others group-based interventions. When comparing the studies one must consider the potential additional benefits of being in a group and/or receiving regular face-to-face contact with a ‘therapist’/interventionist/psychologist and how this may contribute to the overall ‘intervention effects’ reported. Similarly, the amount of experience and skills of those facilitating the interventions must also be taken into consideration as this too may have an impact on the perceived effectiveness of the intervention.

The content of the interventions reviewed greatly differed, and this has implications for the overall validity of the reported findings within this research field, in particular the construct validity. For example, it is questionable as to whether all studies reviewed evaluated the efficacy of PP *per se*; one study incorporated narrative therapy techniques (Larsen *et al.* 2015). Furthermore, some interventions included the presentation of research within the field, and this may have had a persuasive effect on the participants as the mere expectation that interventions ‘work’ has been shown to increase their efficacy (Lyubomirsky *et al.* 2011). How the content was delivered also differed between studies. Within three studies participants were actively encouraged to practice the skills

between sessions and were set homework tasks or given workbooks to consolidate the skills/techniques learnt (Cullen *et al.* 2016; Huffman *et al.* 2011; Huffman *et al.* 2015), whereas other intervention programmes did not emphasise this.

Excluding the feasibility studies, whose primary aim was to assess the feasibility of the intervention, the aims and primary outcome measures of the remaining studies were diverse. The outcome measures selected may have affected the nature of the findings, in particular their validity. Some may have overlooked the expected benefits of PP interventions as a consequence of their chosen measures. Given the fact that PP is proposed to provide benefits related to wellbeing, optimism and resilience, it is surprising that not all studies reviewed explicitly measured this as an outcome of the intervention. The aim of the quantitative studies focused on the efficacy and impact of the intervention upon a number of different constructs including: happiness, recognition and use of strengths, wellbeing, self-esteem, emotional intelligence, resilience, optimism, positive and/or negative affect, post-traumatic growth, hope, acceptance of pain, depression, anxiety, health related quality of life, engagement, pleasure and alertness. Interestingly, three studies did not include (or failed to report on) a measure of negative affect (Andrewes *et al.* 2014; Howell *et al.* 2015; Van Haitsma *et al.* 2015). This may have an impact on the reliability of the reported findings and may mislead the reader to infer that the intervention had a greater effect on positive affect than it actually did. Furthermore, not all of the outcome measures used were validated for the populations they were used on. For example, the Authentic Happiness Inventory [AHI] was used as a primary outcome measure in two of the studies reviewed (Andrewes *et al.* 2014; Cullen *et al.* 2016).

Across the eleven studies there were inconsistencies with regards to the data collection, specifically whether follow-up data was collected. For example, Cullen *et al.* (2016) collected follow-up data at nine and 20 weeks post intervention, whereas Moskowitz *et al.* (2014) collected follow-up data at four weeks post intervention only. No follow-up data was collected beyond the end of the intervention in seven studies (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Hashemi & Raghbi, 2014; Howell *et al.* 2015; Huffman *et al.* 2011; Huffman *et al.* 2015; Van Haitsma *et al.* 2015). By not collecting follow-up data, the long-term benefits of positive psychology interventions cannot be determined and the inclusion of follow-ups is required in future research.

The samples included within the studies reviewed ranged from 10-180 participants (including controls), and in eight out of the eleven studies the sample size was less than 50 participants. The small sample sizes across the range of physical health conditions included within this review has implications for the generalisability of the findings to physical health populations. Furthermore, the studies were conducted in a range of different countries within which there may exist cultural differences in the conceptualisation of wellbeing, optimism, resilience, hope and happiness etc. Such

diversity may be both an advantage in terms of the cross-cultural application of PP, but, the overall validity of the evidence base may be compromised, particularly via the use of westernised outcome measures. The quality of future research may be improved via the use of culturally specific outcome measures and measures that have been validated across a number of cultures and physical health conditions.

The sampling and recruitment methods employed across the studies reviewed also have their limitations, and the impact of these must be taken in to consideration when reviewing the quality of the findings. For example, a number of studies employed an opportunistic sampling methodology or included self-selected participants. This may have introduced bias and limited the generalisability of the findings. Future research studies may consider the benefits of systematic sampling when recruiting participants to the research study.

1.6.4.4 Summary and Implications for Future Research

As illustrated in the previous section, the studies included within this review highlight the need for more high quality PP intervention studies within physical health. Disappointingly, none of the studies included within this review met the full quality criteria listed in the SURE frameworks used to appraise them (Appendix B and C). Quality-rating scores ranged from 12-22 out of a possible 28 points. The majority of the studies included within this review support the efficacy of PP interventions and propose a range of benefits associated with the intervention including an increase in positive affect, increase in happiness and a decrease in negative affect. However, one must be cautious when interpreting the findings, as the previously discussed methodological issues are likely to have an impact on the overall quality and generalisability of the findings reported.

The quantitative study that obtained the highest quality rating was Sanjuán *et al's.* (2016) study examining the efficacy of a group-based PP intervention for cardiac patients. This study was awarded the overall highest quality score as it addressed a clearly focused question, included a control group comparison, provided details of how participants were randomised and the details of the intervention were well described. The study conducted by Cullen *et al.* (2016) examining the efficacy of individual PP interventions with participants with acquired brain injuries also scored highly (21/28). They also included a control group comparison, details about the intervention and conducted follow-up assessments at five, nine and 20 weeks post baseline. Andrewes *et al's.* (2014) study examining the efficacy of a group-based PP for patients with a traumatic brain injury obtained an overall quality score of 19 out of a possible 28. Cerezo and colleagues' (2014) study examining the efficacy of a positive psychology group intervention for breast cancer patients obtained the fourth highest quality score of the ten quantitative papers. Cerezo *et al.* (2014) also included a control group, randomised

participants, and included a range of appropriate outcome measures assessing both positive and negative affect. These four quantitative studies can be considered as the most robust papers to inform the current empirical research question and the proposed quantitative design. The qualitative paper included within this review obtained an overall quality rating of 15 out of 20, given that it was the only qualitative paper this has little bearing on the overall perceived quality of the qualitative studies within this area. However, when the quality score is converted in to a percentage (75%), the qualitative study is of comparable quality to Cullen *et al*'s. (2016) study (75%).

The overall quality ratings of the other six studies included within the review ranged from 10-16 out of a possible 28. Their quality ratings were reduced due to methodological limitations including a lack of clarity in reporting the details of the intervention design and content and the absence of a control group comparison. Although none of the studies included within this systematic review obtained a quality score above 80%, the strengths and weaknesses of each study identified via the use of the quality frameworks should be considered when conducting the proposed empirical study and when reviewing the existing evidence base.

Given the limitations identified for the studies included within this review, further research regarding the use of PP interventions is required. Furthermore, to the author's knowledge, no studies to date have solely examined the efficacy of positive psychology group interventions for the stroke population. Despite the reported benefits of group-based interventions for chronic physical health conditions including strokes (Connect, 2012), the evidence base for group-based psychological interventions for the stroke population remains limited. What is more, of those that have been evaluated, the typical approach tends to involve CBT techniques with a focus on reducing negative affect rather than enhancing positive affect and wellbeing.

All of the studies included within this review focused on the possible benefits of an intervention for individuals with health conditions. They did not explore the potential benefits of a PP intervention on the carers, spouses or relatives. Chronic physical health conditions such as strokes often have a substantial impact on the individual and their spouses, relatives and carers, including depression (Han & Haley, 1999), anxiety and loneliness (Greenwood *et al.* 2009).

There is a scarcity of quantitative research examining the benefits of a survivor and carers group intervention in which both populations participate together. Evaluating the efficacy of a positive psychology group intervention for both stroke survivors and carers may be an opportunity to further explore the potential benefits of this novel approach. Aside from the potential wellbeing benefits of the intervention, developing an intervention for both carers and those with the health condition may be a practical way to increase engagement and access to community-based interventions. For

example, carers/spouses/relatives could have a role in supporting the stroke survivor to attend the groups as transport is frequently identified as a barrier to accessing community based support (Muller et al 2014).

In summary, although the current findings are promising and suggest that PP interventions may be of benefit to individuals with physical health conditions, further research is required, in particular within chronic physical health conditions such as stroke which have huge financial implications for healthcare services. As identified, the quality of the studies within the current evidence base is varied. To improve upon the quality of this, future studies should include a control group, random assignment of participants, follow-up data collection and the inclusion of appropriate validated outcome measures that consider both positive and negative affect in addition to a measure of wellbeing.

1.7 STUDY RATIONALE AND HYPOTHESES

The impact of a stroke, both physically and emotionally, has been discussed throughout this chapter and the implications beyond the individual have been acknowledged, including the effect on carers, healthcare services and the wider UK economy. Given the high prevalence of psychological difficulties post-stroke, the role of psychology services within stroke care and rehabilitation services is of paramount importance.

The evidence base for psychological interventions post-stroke remains limited especially with respect to group interventions. However, there is increasing evidence of the efficacy of PP interventions across physical health and mental health conditions. Although no studies to date have evaluated the efficacy of this approach solely within the stroke population, it is hypothesised that it will be of benefit. Given the variable quality of research evaluating PP interventions within chronic health conditions, and the absence of research evaluating it within stroke, the primary aims of the studies reported in this thesis were to evaluate feasibility and the efficacy of a group based PP intervention within a community stroke service. The aim of a feasibility study is to identify whether or not the study can be done and to identify any potential limitations of the proposed design. Within the context of this study, feasibility factors being examined included: examining the recruitment of participants, the willingness of participants to be randomised, the number of appropriate participants available within the population, response rates to questionnaires, attendance rates, barriers to attending the sessions and/or completing the questionnaires This study aims to evaluate the feasibility and efficacy of the group intervention using a range of standardised measures completed by stroke survivors and carers. If deemed effective, the findings of this study could have significant implications for stroke

survivors and carers regarding their psychological wellbeing and access to psychological resources within community stroke services. What is more, this intervention does not need to be facilitated by trained Psychologists. It could feasibly be delivered by service-users and/or other health professionals, thus enabling psychology resources to be used elsewhere within the community stroke service.

1.7.1 Hypotheses

Following a review of the current evidence base regarding stroke, wellbeing, psychological interventions and the efficacy of PP interventions, the following hypotheses were made.

1.7.1.1 Feasibility Study (Study 1a)

It is hypothesised (one-tailed) that participants attending the PP group will report:

- a. An improvement in their psychological wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the Short-form Warwick Edinburgh Mental Wellbeing Scale ([SWEMWBS] Stewart-Brown, *et al.* 2009).
- b. A reduction in their psychological distress (anxiety and/or depression) from baseline to follow-up compared to the waiting list control group, as measured using the Hospital Anxiety and Depression Scale ([HADS] Zigmond & Snaid, 1983).
- c. A significant negative association between psychological distress and psychological wellbeing will be observed in the participants attending the intervention group, as measured using the HADS and the SWEMWBS.
- d. Positive changes in their multidimensional wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the PERMA-Profilier ([PERMA-P] Butler & Kern, 2014).
- e. Improvements in their daily functioning compared to the waiting list control group, as measured using the Frenchay Activities Index ([FAI] Holbrook & Skilbeck, 1983).

1.7.1.2 *Small N Side-Study (Study 1b)*

It is hypothesised (one-tailed) that:

- f. Participants will report an improvement in their psychological wellbeing over the three phases using the SWEMWBS.
- g. Participants will report a reduction in their psychological distress (anxiety and/or depression) over the three phases using the HADS.
- h. A significant negative association between psychological distress and psychological wellbeing will be observed, as measured using the HADS and the SWEMWBS.
- i. Participants will report positive changes in their multidimensional wellbeing over the three phases using the PERMA-Profiler.
- j. Participants will report improvements in daily functioning over the three phases using the FAI.
- k. The regression of weeks on weekly SWEMWBS will produce a significant positive slope.

CHAPTER TWO: METHODOLOGY

2.1 DESIGN

This study is comprised of a feasibility study (1a) and a *small n* side study (1b), both of which used a quantitative, within and between groups (mixed) design. Study 1a appraised the feasibility of a positive psychology group intervention for stroke survivors and carers of stroke survivors; study 1b further evaluated the efficacy of this intervention. The initial proposed study was an RCT, however, due to recruitment difficulties experienced and high attrition rates, adaptations to the research design were made.

Within study 1a the participants were randomly assigned to the intervention group or a control group (waiting list control) who did not attend the intervention group. Study 1b did not have a control group comparison, participants acted as their controls. All participants in both studies (1a and 1b) completed a battery of self-report outcome measures at three time points throughout the study; pre (baseline), post-intervention (five-week period) and ten weeks post baseline.

The battery of self-report measures included:

- a demographic survey (completed at baseline only);
- the Hospital Anxiety and Depression Scale ([HADS] Zigmond & Snaid, 1983);
- the Short-Form Warwick Edinburgh Mental Wellbeing Scale ([SWEMWBS] Stewart-Brown, *et al.* 2009)*;
- the PERMA-Profilier ([PERMA-P] Butler & Kern, 2014);
- the Frenchay Activities Index ([FAI] Holbrook & Skilbeck, 1983).

*Participants in study 1b also completed the SWEMWBS at the start of each group session as a measure of weekly progress. A process measure (PSYCHLOPS) was trialled in session one (Study 1b), but, the participants reported that they did not find this measure helpful or applicable to their experiences, and so, its use was discontinued.

2.2 PARTICIPANTS

2.2.1 Power Analysis

2.2.1.1 Feasibility Study (Study 1a)

The sample size was calculated using G-Power (Faul *et al.* 2007), an assessment of statistical power. As mentioned previously, there is limited published data available on the efficacy of group-based psychological interventions with the stroke population. There is great variation in the sample sizes used in the quantitative research regarding PP interventions with physical health populations. They range in size from 10-180 participants (including controls). Taking these sample sizes and the resource limitations into consideration, the power calculation was based on a medium effect size (Cohen, 1988).

The statistical analyses proposed to assess the feasibility of the intervention and its efficacy were a global MANOVA across the main design over the three measurement periods (baseline, post intervention and 10 weeks post baseline) and follow up ANOVA's of any significant changes in self-reported wellbeing identified across the three time points. Based on a medium effect size of $f^2=0.25$, 48 participants were needed for 0.80 power to be detected using standard parameters of $\alpha=0.05$ for the initial MANOVA. To examine any significant changes across the time points, by conducting multiple ANOVA's, 28 participants were needed to detect a medium effect size at 0.80 power and α set at 0.05. A total of 48 participants were recruited to the feasibility study (Study 1a): 24 were assigned to the intervention group and 24 to the control group. However, due to participants withdrawing prior to attending the first session and high attrition rates within the intervention group and participants not returning the questionnaires in the control group, the final data set was considerably smaller; $n=20$ (10 intervention group participants and 10 control group participants). Given the small sample size it was anticipated that there would be difficulty detecting significant differences between the two groups (intervention and control) (Akobeng, 2005).

2.2.1.2 Small *n* Side Study (Study 1b)

No power calculation was conducted for the small *n* side study.

2.2.2 Inclusion and Exclusion Criteria

The following inclusion criterion was used when recruiting participants to study 1a and 1b:

- All participants must have had a stroke or be a carer* of someone who has had a stroke within the past 5 years. Alternatively, participants could be a stroke survivor who had a stroke more than 5 years ago but has ongoing psychological needs.
- Participants must be at least one-month post stroke before participating in the study. Participants must be an outpatient (living in the community) and previously a patient in the Stroke Rehabilitation Centre, University Hospital Llandough, the Stroke Ward (A6 North, University Hospital of Wales) or who had received support from the ESD service.
- All participants must be 18 years of age or older.

*Carer was defined as a family member, friend or paid ‘helper’ who provided regular (at least three hours contact per week) care to an individual who had experienced a stroke. The care provided included assistance with tasks that the individual may otherwise find difficult to complete independently, these included assistance with meal preparation, cleaning, washing, dressing, and transport.

Following discussion with clinicians working within the Stroke Rehabilitation Psychology Service, it was agreed that only participants who were at least one-month post discharge from the inpatient Stroke Rehabilitation Centre should be invited to participate in the study. The rationale for this decision was to allow individuals a period of adjustment once back in the community and to not overlap with the Early-Supported-Discharge [ESD] service who provide rehabilitation input, including psychology, for some stroke survivors for up to six weeks following their discharge. It was essential for all participants within the studies to be able to communicate in English or Welsh, all of the written information used in the recruitment process was written in English, however, a translated Welsh version could be provided if requested. None of the self-report questionnaires used within the study were validated in Welsh and therefore could not be translated, however, a translator would have been employed if necessary for any Welsh-only speaking participants recruited. Stroke survivors and carers were excluded from participating in either of the studies if they met any of the following exclusion criteria:

- Significant auditory, visual and/or cognitive difficulties that would prevent them from providing their informed consent, from being able to participate in the group intervention itself and from completing the questionnaires – this was judged by the clinicians working within the Stroke Rehabilitation Psychology Service prior to inviting the individual to participate.

- Presence of severe language impairment (expressive and/or receptive).
- Inability to communicate proficiently in English or Welsh.

2.3 PROCEDURE

The following section provides an overview of the research procedure, as outlined in Figure 5 (p.54), and a description of the four phases of the feasibility study and the small *n* side study; study approval, recruitment, intervention, and debrief.

2.3.1 Phase 1: Study Approval

As per the Research Governance Framework for Health and Social guidelines, a sponsor was required for the project. Cardiff University acted as the sponsor and agreed to take responsibility for ensuring that the design of the study met appropriate standards and that appropriate conduct and reporting occurred for the duration of the project (Appendix D sponsorship letter and Appendix E public liability insurance certificate). All participants within the study were recruited via the NHS (Cardiff and Vale University Health Board), and ethical approval was therefore sought and obtained from the NHS National Research Ethics Service [NRES] research ethics committee (Appendix F, approval letter). Research and development approval was received from the Cardiff and Vale UHB Research and Development Office, the host organisation; they gave approval for the study including the amendment (Appendix G).

Following the initial research project approval, approval for two subsequent amendments were made and approved by NRES and the host organisation; the first amendment involved changing two self-report measures, this was conducted after the recruitment phase prior to starting the intervention phase (Appendix G, amendment 1 approval); the second amendment was made immediately following the completion of the intervention phase (Study 1a). This involved the addition of a self-report measure and permission to use the first study (1a) as a feasibility study and to conduct a subsequent small *n* side study (1b) (Appendix H, amendment 2 approval).

2.3.2 Phase 2: Recruitment

Stroke survivors and carers of stroke survivors who had previously been inpatients in the Stroke Rehabilitation Centre (University Hospital Llandough), the Stroke Ward (A6 North, University Hospital of Wales) or who had received support from the ESD service were recruited to this project.

A summary of the recruitment phase (phase 2a) for study 1a is depicted in table 1 overleaf, as reported, 107 potential participants (n=88 stroke survivors, n=19 carers) who had previously accessed the stroke rehabilitation services in Cardiff and Vale UHB, were initially identified by the Stroke Rehabilitation Psychology Service clinicians. The two clinicians made initial contact with the potential participants (n=93, unable to contact n=14) at clinic appointments or via telephone contact, and informed them of the proposed intervention project. Leaflets (see Appendix I) were given to those who attended a clinic appointment and who had expressed an interest in participating in the study and were also sent to those who expressed an interest in participating in the project during the telephone contact. During this initial contact, consent to be contacted by the author (researcher) was obtained (Appendix J). Of note, all individuals were informed that they could attend the group even if they choose not to participate in the study. Those who verbally declined were not contacted again, but were informed they could contact either the clinicians or the author if they changed their minds about participating in the study. Of those contacted, 63 expressed their interest in participating in the project and gave their consent to be contacted by the author.

Table 1. Recruitment Phase - Study 1a Pre-Consent

Recruitment to Intervention/Control Group 1 (Phase 2a)	
Pre-Consent	
Identified	107 (88 survivors, 19 carers)
Invited to participate and sent leaflet (contacted by clinician during clinic appointment/telephone)	93 (unable to contact n=14)
Declined / Not interested	30
Interested and provided consent to be contacted by researcher	63
Declined participation once received further information from researcher	15
Total consented to participate	48 (35 survivors, 13 carers)

Approximately one week after the initial contact, the author contacted each interested individual to provide more information about the study. During this telephone conversation individuals were informed that they would be randomly allocated to either an intervention group or the control group who would receive the intervention at a later date. At this point, a further 15 individuals declined any further involvement in the project.

The 48 participants were randomly allocated to either the intervention group or the comparison control group. The author contacted each participant by telephone to inform them which group they had been allocated to and provided them with the proposed start-date. This process proved problematic as four participants allocated to the first intervention group were unable to attend the group sessions, but were able to attend the sessions at the proposed later date. Similarly, four

participants allocated to the control group were unable to attend the proposed later group sessions due to other commitments. These eight participants (4 survivors and 4 carers) were re-allocated to either the intervention group or the control group.

Due to high attrition rates, as illustrated in table 2 below, the study in its original form was discontinued after the completion of *Intervention Group 1*.

Table 2. Recruitment Phase (Phase 2a) - Study 1a Post-Consent.

Post-Consent	Intervention	Control
Total allocated	24 (18 survivors, 6 carers)	24 (17 survivors, 7 carers)
Chose not to participate (did not provide any data)	4	10
Provided full data set (pre, post, follow-up)	10	10
Attended < 3 sessions/did not provide full data set	10	4

The intervention was subsequently revised following feedback from the intervention participants and the participants originally allocated to the comparison control group were assigned to *Intervention Group 2* as part of study 1b. Fourteen of the control participants did not complete the full data set (n=10 survivors, n=4 carers), however, all 24 were offered the opportunity to join *Intervention Group 2*. As depicted in table 3 overleaf, of those invited, four declined and an additional three participants were recruited to *Intervention Group 2* (n=3 survivors), all were identified by the Stroke Rehabilitation Psychology Service clinicians during the intervention phase of the original study (1a). Twenty three participants were recruited to *Intervention Group 2*, of those 20 provided consent to participate (n= 20, 16 survivors, 4 carers). Three participants did not attend any sessions and withdrew from the study (n=2 survivors, n=1 carer), one participant (survivor) became unwell after attending one session and subsequently withdrew from the study and one carer joined the group from the second session onwards.

Table 3. Recruitment Phase (Phase 2b) - Study 1b.

Recruitment to Intervention Group 2 (Phase 2b)	
Pre-Consent	
Control Group 1 invited to Intervention Group 2	24
Control Group 1 participants that declined Intervention Group 2	4 (3 survivors, 1 carer)
Newly identified recruits	3 (3 survivors)
Total consent to participate	20 (15 survivors, 5 carers)
Post-Consent	
Total allocated	20
Chose not to participate (did not provide any data)	3 (2 survivors, 1 carer)
Provided full data set (pre, post, follow-up)	14
Attended < 3 sessions/did not provide full data set	0
Withdrew due to illness	1

2.3.3 Phase 3: Intervention

2.3.3.1 Randomisation

Once consent had been obtained, participants were randomly assigned to one of two groups (intervention group 1 or control group 1) using a quota basis that balances the number of participants (survivor/carer) across the intervention and control conditions. It was originally proposed that participants would be randomly allocated to one of four groups (intervention group 1, intervention group 2, control group 1, and control group 2) in the first recruitment phase (Phase 2(a)), with a maximum of 14 participants in each group due to size constraints of the venue. However, the venue size was subsequently deemed appropriate to accommodate a larger group of participants, therefore, 24 participants were assigned to each of the two groups. The stroke survivor participants and their carers/partners were allocated to the groups as joint participants, this was to ensure that they were allocated to the same group. Not all stroke survivor participants attended with a partner/carer, therefore for they were allocated as a single participant.

The method employed to randomly allocate participants involved writing each participant's identifying number on a card which was then placed in a box. When all cards were in the box, the box was shaken to mix the cards. The survivor-carer dyads cards were not added to the box to ensure survivor-carer dyads were equally represented across the two groups, they were allocated to each of the conditions prior to the single participants. The author and clinical supervisor took it in turns to

select cards at random and pair them with their assigned condition (author-control group, clinical supervisor-intervention group). This process was repeated until all 48 participants were allocated to one of the two conditions, 24 names in total were assigned to each group. As previously mentioned, the allocation of participants to each of the conditions was not without its challenges; eight participants (4 survivors and 4 carers) were re-allocated to *Intervention Group 1* or *Control Group*, as described above.

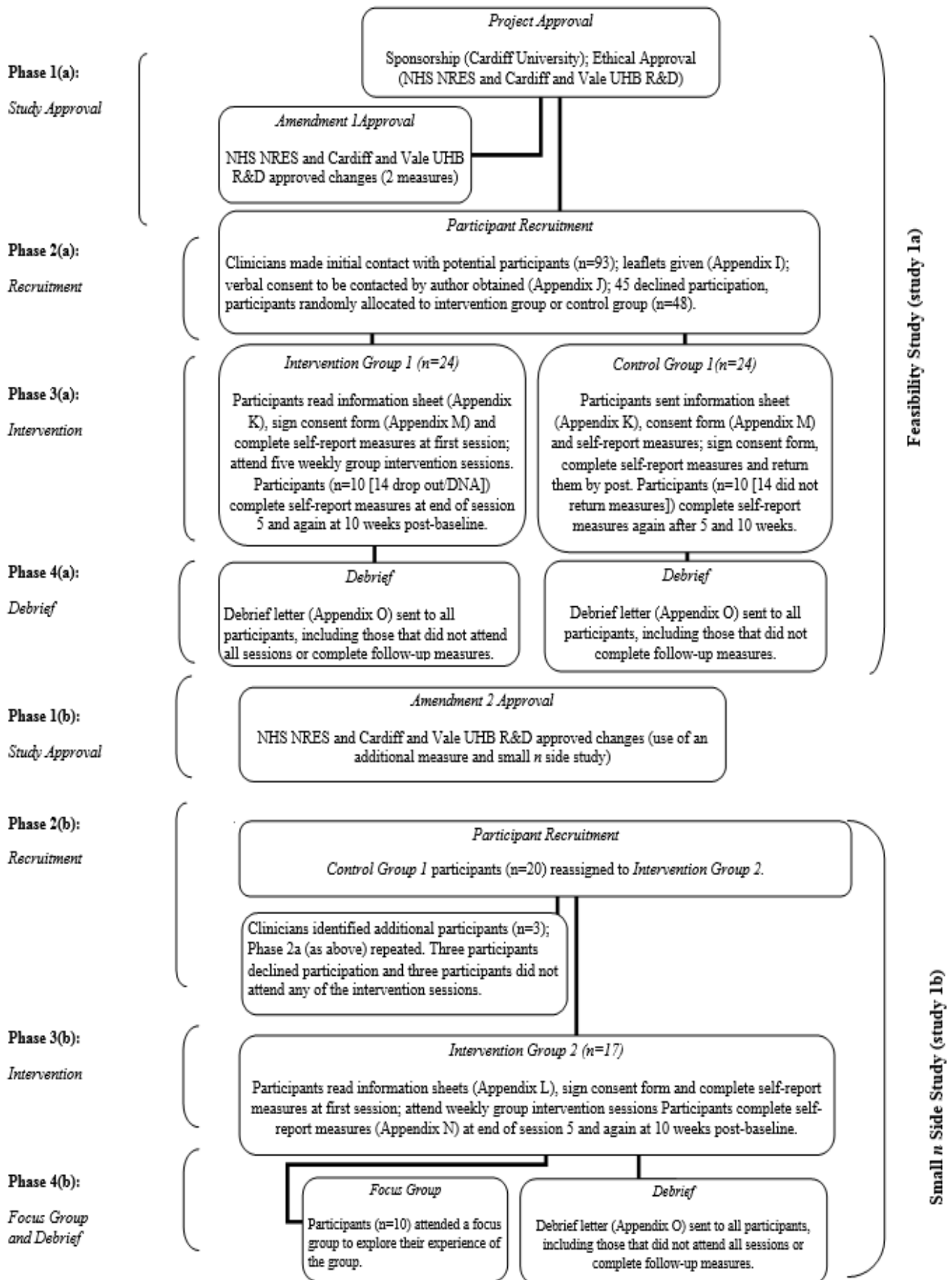


Figure 5. Research phases and process overview.

Following feedback from *Intervention Group 1* participants, the observed high attrition rates and following discussions with the project supervisors, it was agreed that data collected from *Intervention Group 1* and *Control Group 1* would be used to assess the feasibility of the intervention and that a subsequent *small n* study (Study 1b) would be conducted to evaluate the efficacy of the intervention. The participants identified a number of barriers to attending the group sessions, including transport issues, and proposed a number of changes to the content and format of the intervention; all of which were taken in to consideration when planning and implementing the study 1b.

Due to the high attrition rates observed in *Control Group 2*, a second recruitment phase was required (Phase 2(b)). The originally recruited *Control Group 1* participants ($n=24$) were assigned to *Intervention Group 2* (Study 1b), four declined the intervention, and a further three participants were recruited and assigned to this same group. Participants were not randomly allocated to a condition as no control group comparison was used in study 1b. Participants acted as their own controls due to it being a within-subjects design.

2.3.3.2 *Achieving Wellbeing Positive Psychotherapy Intervention*

The intervention consisted of five weekly 2-hour group sessions. The sessions were held at the Day Hospital, University Hospital Llandough, and were co-facilitated by a clinician (clinical supervisor) and the author; both had experience of facilitating positive psychology group interventions for stroke survivors (inpatient pilot study; McMakin *et al.* 2014).

The overall focus of the intervention group was to teach participants skills to enhance their wellbeing and resilience. Each of the five sessions focused on one of the five facets of the PERMA model of wellbeing (Seligman, 2011); Positive Emotions, Engagement, Relationships, Meaning, Accomplishments, plus optimism, and resilience. The content of the sessions was delivered using a PowerPoint presentation, group discussions, experiential exercises and followed up with optional weekly 'home activities' to encourage the participants to practice the skills between sessions. A more detailed overview of the content of the sessions for study 1a and study 1b is provided in Appendix R.

During the first group session participants were given the relevant information sheet (survivor/carer; Appendix K/L) and were required to provide their written consent (Appendix M) to participate in the study prior to completing the self-report questionnaire pack (Appendix N). The information sheet provided participants with an overview of the study, the rationale, details regarding the inclusion and exclusion criteria to participate in the study, potential risks and benefits of participating in the study and contact details for both the author and the Chief Investigator (academic supervisor). All

participants were reminded at this point that they were able to attend the intervention group even if they chose not to participate in the research study; all participants provided their written consent to participate in the study at this time.

As part of the research study all participants were required to complete the questionnaire pack at three time points; during the first session, at the end of the fifth session and again five weeks later. The questionnaire pack took approximately 25 minutes (on average) to complete, the co-facilitators were available to provide support to those participants who required it.

With regards to the feasibility of the intervention, qualitative feedback provided by the *Intervention Group 1* participants reported that the content of the sessions was relevant to their lives, that the presentation was easy to follow, ‘pitched at the right level’ and that the venue and its facilities met their needs. With regards to the structure of the sessions the participants reported that more opportunities for discussion amongst the group (small groups and as a large group) would have been helpful, additional suggested improvements included giving each participant a copy of the presentations used, doing more in session activities and reducing the content of the first session. Following this feedback, the content of the intervention was reviewed and amended to include more opportunities for group discussions and less information on slides within the PowerPoint presentation used to support skills development and knowledge. In addition, at the end of the group sessions (week 5) all participants were given a folder containing a copy of the presentation and all optional home activities, this was to encourage participants to use the resources and to continue to practice the skills learnt. Aside from these amendments, the procedure was identical to that followed in Study 1a, however, participants were given amended versions of the information sheets (Appendix L).

2.3.3.3 *Control Group*

All participants allocated to the *Control Group 1* were contacted by the author (telephone) to inform them of their allocated group and the proposed start date for their intervention group. Participants were sent an information sheet, consent form and the questionnaire pack (Appendix K, M, and N). They were asked to return their consent form and completed questionnaire, with date of completion included, in the stamped envelope provided. Participants were given the option to request a telephone call from the author to complete the questionnaires over the telephone if preferred. After a two-week delay, follow-up calls were made to the participants who had not returned their consent form and questionnaire pack to check that they had received them and wanted to continue to participate in the study. If questionnaires were returned late, the participant’s subsequent questionnaires were staggered to ensure the five week and ten week follow-up time periods were adhered to.

2.3.3.4 Attrition Rates

2.3.3.4.1 Feasibility Study (Study 1a)

Not all participants assigned to *Intervention Group 1* attended the group sessions; of those that consented to participate (n=24), eleven participants did not attend any sessions (n=4) or withdrew from the study once the intervention had commenced (n=7), the initial attrition rate calculated was therefore 46%. Ten participants attended fewer than four sessions and/or did not complete the post intervention and follow-up questionnaire packs, therefore their data could not be included in the final analysis. The final intervention group data set was comprised of ten participants who attended four or more sessions; eight stroke survivors and two carers. The overall attrition rate for participants assigned to the intervention group who did not attend, dropped out or missed more than one session was 58% (14/24). A summary of the number of sessions attended is provided in Appendix P. Ten participants assigned to *Control Group 1* did not provide any data, thus an initial attrition rate of 42%, a further four did not return their 5 week and/or their 10 week post baseline questionnaires despite a telephone reminder, and this increased the overall rate to 58% (nine stroke survivors and five carers). In total ten control participants (eight stroke survivors and two carers) provided complete data sets for analysis in study 1a. The overall attrition rate for this study (n=48) was 58% (28/48). Complete data sets from 20 participants (n= 10 control group participants, n=10 intervention group participants) were included in the statistical analysis.

Feedback obtained from the study 1a participants identified the following factors as barriers to attending the sessions and/or reasons for their non-attendance at all of the sessions and/or incomplete data sets: transportation issues, low self-confidence- felt unable to attend on own, misunderstood that they were group sessions not individual sessions - felt uncomfortable sharing difficulties with others in a group format, illness, clashes with hospital appointments, and subsequently planned holidays/family events.

2.3.3.4.2 Small n Side Study (Study 1b)

As in study 1a, not all participants assigned to the intervention group attended the sessions, of those who had consented to participate (n=20), a total of four participants did not attend any sessions (n=3) or withdrew from the study after one session due to illness (n=1), thus there was an overall attrition rate of 20% in *Intervention Group 2* (three stroke survivors and one carer). Three participants attended fewer than four sessions and/or did not complete the post intervention and follow-up questionnaire packs, therefore data was not included in the statistical analysis. Including those who did not attend any sessions, dropped out and those who attended fewer than four sessions, the total

attrition rate was 30%. Fourteen participants, twelve stroke survivors and two carers, provided complete data sets for analysis in study 1b.

2.3.4 Phase Four: Focus Group and Debrief

2.3.4.1 Focus Group

One month after the end of the intervention, participants from *Intervention Group 2* were invited to attend a focus group to explore their experience of the '*Achieving Well-being*' group, this was co-facilitated by the author and an assistant psychologist. Ten participants attended this focus group (59%); two carers and eight stroke survivors, see Appendix R for the focus group attendee demographics and assigned coding number used for analysis purposes.

A semi-structured interview schedule was co-developed with a clinician who is experienced in delivering positive psychotherapy interventions and in conducting focus groups. The rationale for the focus group was to support the quantitative evaluation of the intervention and to obtain rich data that could be used to inform future group-based interventions delivered. Factors such as what they enjoyed most about the groups and the skills they learnt were explored. See Appendix R for a copy of the semi-structured interview schedule used.

2.3.4.2 Debrief

All participants who participated in the study, including those who dropped out or did not complete follow-up measures, were sent a thank you and debriefing letter (Appendix O).

2.4 ETHICAL CONSIDERATIONS

2.4.1 Informed Consent

As a requirement of participating in the research project participants were required to provide written or verbal consent (a witness signed on behalf of the participant if reading or writing difficulties prohibited this) confirming that they understood the information sheet provided, that they had had any questions about the study answered, and that they agreed to take part in the study. As previously mentioned, all participants were informed that their participation in the study was voluntary, that their data would be anonymised and that they could withdraw from the study at any time without it affecting their care.

2.4.2 Data Collection, Confidentiality and Storage

2.4.2.1 Data Collection and Confidentiality

The data was collected over a six-month period, 28th October 2015 - 1st April 2016, within which time two intervention groups were facilitated. The intervention group participants completed the questionnaire pack at the first group session, at the end of the fifth group session (or at home if they could not stay behind at the session) and at home (by post or telephone) for the final questionnaire pack issued. Participants in the control group completed all of the questionnaire packs at home via telephone or returned them by post. All participants in both conditions were given the opportunity to complete the questionnaires in writing or via telephone with the author, but in the event only one participant requested to complete them via telephone.

Each participant was assigned a unique identifier number to ensure that their data remained anonymous and confidential. Only the author and clinical supervisor had access to the list of identifier numbers from which the names of the participants could be identified. This unique code was recorded on each of the participants' questionnaires, including those posted to participants. Those who completed the questionnaires in writing were instructed not to provide any personal identifying information, including their names, on their completed questionnaires. Any identifying information (demographics) was destroyed immediately upon participants completing their involvement in the study. Details regarding confidentiality and anonymity of data was provided within the information sheets and in the debrief letters provided.

2.4.2.2 Data Storage

All personal data was stored securely in a locked cabinet on Cardiff and Vale UHB premises, and only the author and clinical supervisor had access to this information. The consent form and questionnaires were stored separately to ensure that participants could not be identified. The author and supervisors are the only individuals who had access to the anonymised data collected in the study, as outlined in the participant information sheets and consent form. In line with Cardiff University's data retention and archiving policies for clinical research relating to public health, all research data (after anonymisation) will be stored for 15 years. This is made explicit within the participant information sheet. Personal data will be destroyed using a shredder after a maximum of two years. Anonymised data will be stored electronically for 15 years, as per university guidelines, after which time it will be deleted from the electronic database.

2.4.2.3 Data Analysis and Confidentiality

The data was analysed by the author, under the supervision of the Academic Supervisors. Only anonymised data was analysed using Cardiff University software.

2.4.3 Participant Wellbeing

Attempts were made to forewarn participants that they might find completing questionnaires about their experience of the stroke, either as a survivor or as a carer, upsetting and that attending the group might raise issues that they would find distressing. The Information Sheets provided information about this and reminded participants that they were free to withdraw from the study at any time without it impacting on their care, should they wish to stop. The author and co-facilitator ensured they were available at the start and end of all sessions to speak with any participants who might wish to speak to them about any difficulties that may have arisen when completing the questionnaires or during the group session. Furthermore, contact details for the Stroke Rehabilitation Service clinicians, the author, research supervisor and the local Stroke Association were provided in case participants wanted any additional support.

2.5 MEASURES

In addition to a brief demographic survey, four validated self-report measures were used to evaluate the effectiveness of a positive psychology wellbeing group for stroke survivors and carers. A copy of the measures used can be found in Appendix N. These four self-report measures were administered at three time points in both studies (1a and 1b); baseline, five-weeks post baseline and 10-weeks after baseline. The Short-Form Warwick Edinburgh Mental Wellbeing Scale ([SWEMWBS] Stewart-Brown, *et al.* 2009) was also used as a weekly outcome measure in the small n side study (1b). It was administered at the end of sessions two, three and four.

2.5.1 Demographic Survey

All participants (survivors and carers) were asked to provide demographic information including: age, gender, ethnicity, educational experience, occupation, living circumstances, details of the stroke and how it has affected them. The demographic questions were identified following consultation with clinicians who have expertise in working within a stroke rehabilitation setting.

2.5.2 Psychological Distress: Hospital Anxiety and Depression Scale ([HADS] Zigmond & Snaid, 1983)

The HADS (Zigmond & Snaid, 1983) is a self-report measure of anxiety and depression symptoms. It was originally designed for use in non-psychiatric settings, and therefore, to avoid potential confounding biases from underlying health conditions no questions referring to physical symptoms were included (Zigmond & Snaid, 1983). The scale consists of 14 items divided into two subscales (anxiety [HADS-A] and depression [HADS-D]). Each item is rated from 0 to 3 in reference to the severity (higher score indicating greater severity) of a symptom experienced during the past week. The scores obtained on the HADS-A and HADS-D subscales are summed to derive a HADS-Total score (range, 0-42). Clinical cut-offs of >8 have been recommended for both the HADS-A and HADS-D (Bjelland *et al.* 2002). The HADS is frequently used for the assessment of anxiety and depression in stroke patients (Fure *et al.* 2006). Validation studies conducted within the stroke population suggest that a lower cut-off range of 4-7 on the HADS-A and 4-8 on the HADS-D is more appropriate for the stroke population (Aben *et al.* 2002).

Validation studies of the HADS with the stroke population report it to have good reliability and good internal consistency (HADS-Total Alpha = 0.89; HADS-D Alpha = 0.78 (Turner *et al.* 2012)). The HADS reportedly has good sensitivity (HADS-Total = 0.92 (0.64–1.00), HADS-A = >0.80) and adequate specificity (HADS-Total = 0.63 (0.49–0.75), HADS-A = >0.60) when the optimal stroke-specific cut-off scores are used (HADS-A 4-7; HADS-D 4-8, HADS-Total >10) (Bennett & Lincoln, 2006; Sagen *et al.* 2009; Turner *et al.* 2012). Furthermore, the HADS has been reported to be sensitive to change over time (1-6 weeks) and is therefore a useful tool to measure changes in mood (Cameron *et al.* 2008).

2.5.3 Psychological Wellbeing: The Short-Form Warwick Edinburgh Mental Wellbeing Scale ([SWEMWBS] Stewart-Brown, *et al.* 2009)

The Warwick-Edinburgh Mental Well-being Scale ([WEMWBS] Tennant *et al.* 2006) is a well-validated measure of positive psychological well-being. It consists of 14 items covering hedonic and eudaimonic well-being, experience of positive affect (feelings of optimism, cheerfulness, relaxation), satisfaction with interpersonal relationships and positive aspects of functioning including energy, self acceptance, autonomy and competence (Tennant *et al.* 2007). It was originally developed, in part, to be used as a tool to evaluate mental well-being programmes and is therefore deemed to be an appropriate pre and post measure. Validation studies of the measure in a number of populations and groups have demonstrated good internal consistency (Alpha = 0.91) and reliability, with no floor or

ceiling effects, thus suggesting that it is suitable to use when measuring the well-being of a population (Tennant *et al.* 2007).

A shortened version of the WEMWBS was developed following a Rasch analysis; the Short-Form Warwick Edinburgh Mental Wellbeing Scale ([SWEMWBS] Stewart-Brown, *et al.* 2009). The SWEMWBS is a 7-item measure of mental wellbeing. As in the WEMWBS, the items are worded positively and address aspects of positive mental health. The SWEMWBS items focus on aspects of eudaimonic and psychological well-being, and psychological functioning, with little focus on affect and hedonic well-being as featured in the WEMWBS. Each item on the measure is rated on a 5-point Likert scale, from 'None of the time' to 'All of the time'. The item scores are summed to give a total score ranging from 7 to 35 (higher scores indicate greater overall mental well-being), and this score can then be transformed to be used as an interval scale for psychometric analysis.

The SWEMWBS is reported to have good test-retest reliability ($r=0.83$), when repeated one week later, and is deemed to be a reliable measure ($r=0.84$) of well-being (Stewart-Brown *et al.* 2009).

2.5.4 Activities of Daily Living: Frenchay Activities Index ([FAI] Holbrook & Skilbeck, 1983)

The Frenchay Activities Index ([FAI] Holbrook & Skilbeck, 1983) is a 15-item scale that measures functional performance across a range of indoor and outdoor activities associated with daily living. The items are sub-divided into 3 subscales; leisure/work, domestic chores and outdoor activities. The items are rated according to the frequency with which each item is undertaken over the past 3 or 6 months. Scores are recorded using a scale between 1 and 4, where a score of 1 represents the lowest frequency of activity ('never/none'). The scores are summed to derive a total between 15 and 60. Wade *et al.* (1985) introduced a modified scoring system in which a score of 0-3 is yielded, from which a total summed score between 0 and 45 is obtained (Wade *et al.* 1985); higher scores indicate greater independence.

The FAI is a frequently used scale for measuring stroke outcome (Sarker *et al.* 2012); it takes approximately 5 minutes to complete (Segal & Schall, 1994). Good internal consistency ($\alpha = 0.81$) and construct validity have been reported for its use in stroke populations (Tooth *et al.* 2003). Furthermore, good test-retest reliability ($r = 0.96$) has been reported using the FAI (Turnbull *et al.* 2000).

2.5.5 Multidimensional Wellbeing: PERMA-Profiler ([PERMA-P] Butler & Kern, 2014)

The PERMA-P (Butler & Kern, 2014) is a 23-item measure specifically developed to measure the 5 domains of Seligman's PERMA model of well-being; Positive emotion, Engagement, Relationships, Meaning and Accomplishment (Seligman, 2012).

During the development of the measure, 700 theoretically appropriate items were identified to create the measure, which was then tested in a number of studies involving 11,905 participants across the world. Following the initial review, the measure was refined to 199 items and tested on 4000 participants before the final 23 PERMA-Profiler items were determined (Butler & Kern, in press). The final 23-item measure includes 3 items for each 5 domains in addition to items that assess overall well-being (1 item) physical health (3 items), negative emotion (3 items) and loneliness (1 item). Each item is rated on an 11-point Likert scale from 0 to 10, with 0 indicating extremely low levels and 10 indicating extremely high levels. Composite scores for each of the 5 domains are calculated using the mean of the three items; from this a PERMA profile can be generated. The overall well-being score is calculated using the mean of the 15 PERMA items plus the overall well-being item score. Validation studies of the PERMA-P report that each of the domains measured within the profiler have good internal and test-retest reliability, for example a positive intervention validation study (n=1846) reported the following Chronbach's α values; Positive Emotion $\alpha = 0.88$; Engagement $\alpha = 0.72$; Relationships $\alpha = 0.85$; Meaning $\alpha = 0.91$; Achievement $\alpha = 0.78$; Overall $\alpha = .94$ (Butler & Kern, in press).

2.6 PROPOSED ANALYSES

2.6.1 Quantitative Data Analyses

SPSS version 20 (IBM Corporation, 2011) was the statistical package used to conduct the data analysis. Prior to conducting the statistical analysis, preliminary analysis of the data was undertaken to identify any outliers, data entry errors, and to identify if the data was normally distributed within each of the variables. This preliminary analysis is important in determining whether the assumptions for the use of parametric statistical tests were met. Section 3.1 provides further details about this preliminary analysis, from which it was identified that there were a number of outliers within the variables analysed in study 1a and study 1b and that a number of the variables were not normally distributed. To compensate for the presence of extreme data scores (outliers) these scores were adjusted, as detailed in section 3.1. As argued in section 3.1, parametric tests were chosen as the

method of statistical analysis as they are deemed robust enough to test non-normally distributed data within small equal sized samples (Khan & Rayner, 2003). Ideally the bootstrapping method would have been used on all of the statistical analyses conducted, however, this function is not available within SPSS for mixed method designs. The author acknowledges that the findings must therefore be interpreted with caution due to the potential for increased error due to the lack of power and non-normally distributed variables.

2.6.1.1 Feasibility Study (Study 1a)

A mixed design (between and within subjects) multivariate analysis of variance (MANOVA) was used to compare the two main outcome variables, psychological wellbeing (mean SWEMWS scores) and psychological distress (mean HADS total scores). Between subject factors were examined to examine if there was an interaction between group and phase (pre, post, follow-up). Pearson's Correlation Coefficient test was conducted to further explore any associations between psychological wellbeing and psychological distress. Univariate mixed design (between and within subjects) analysis of variances (ANOVAs) were used to investigate any significant interactions between group and phase for the two process variables, multidimensional wellbeing (PERMA-P) and daily functioning (FAI). Follow-up Pearson's Correlation Coefficient tests was used to explore any associations between the two outcome variables, psychological wellbeing and psychological distress, and the two process variables, multidimensional wellbeing and daily functioning. Follow-up analyses will be conducted if significant interactions are observed between group and phase.

2.6.1.2 Small n Side Study (Study 1b)

Repeated measures univariate ANOVA's were conducted to compare changes in mean scores on the two outcome variables measures used, SWEMWBS and HADS, across the three time points (pre, post, follow-up). Follow-up Pearson's Correlation Coefficients were undertaken to further explore associations between the SWEMWBS and the HADS. Further univariate repeated measures ANOVA's were conducted to examine if there were any significant changes in scores on the two process measures used, FAI and PERMA-P. A simple linear regression analysis was conducted to analyse any changes in reported SWEMWBS scores across the five week sessions.

2.6.2 Qualitative Data Analysis

Thematic analysis was used to analyse the qualitative data collected via a focus group exploring Study 1b participants' experience of the PP group intervention. The method employed to analyse the data was data-driven in which the data was coded to explore what themes arose, rather than trying to fit the data to a pre-existing theoretical framework (Braun & Clarke, 2006). Braun and Clarke's (2006) six phases of thematic analysis guide was used as a framework to guide the analysis of the data, the steps were as follows:

- Becoming familiar with the data.
- Coding
- Searching for themes
- Reviewing themes
- Defining themes
- Reporting of analysis

To enhance the validity of the themes identified, subsequent peer review of the transcript and proposed themes was sought.

2.7 SUMMARY

This chapter provides a narrative of the core components of this empirical study including the design, important ethical considerations, the recruitment procedure, the intervention, data collection and the measures used to evaluate the efficacy of the PP intervention. A number of difficulties were encountered during the study, including recruitment, allocation to groups and attrition rates, these will be explored further in the final discussion chapter. As detailed within this chapter, amendments to the original empirical study design were made due to the high attrition rates encountered. The researcher (author) used this as an opportunity to improve the content and quality of the intervention, amendments to the intervention were based on feedback obtained from *Group 1* participants. Once the amendments had been made, the efficacy of the intervention was evaluated via a small *n* side study. There was no control group within the side study as the participants acted as their own controls. The high attrition rates experienced in study 1a had implications for the analysis of the data; due to the small sample the choice of statistical analyses was limited. The following chapter presents the results from the feasibility study (1a) and the small *n* side study (1b), this includes the demographic characteristics of the participants included within the study and the statistical analyses of the data collected.

CHAPTER THREE: RESULTS

This chapter is sub-divided in to four sections; preliminary data analysis for the feasibility study (Study 1a) and the small n side study (Study 1b), descriptives and statistical data analysis for the feasibility study, descriptives and statistical data analysis for the small n side study and the thematic analysis (qualitative data collected in study 1b).

3.1 PRELIMINARY DATA ANALYSIS (Study 1a and Study 1b)

Prior to conducting any analyses, the data was screened to check for errors, outliers, missing data, and to explore how the data was distributed within each of the variables. Following this the author was able to determine whether the data could be analysed using parametric statistical tests.

The following variables assessed were: Age, Months Since Stroke, Age Left School, PERMA-P Overall Wellbeing (pre, post, follow-up), FAI Total (pre, post, follow-up), HADS Total and SWEMWBS Total (pre, post, follow-up).

3.1.1 Error and Outlier Analysis

All data were screened visually by the author, the minimum and maximum value for each of the variables was examined to test whether the data fell within the possible range on each item. No data points were identified as input errors using this method.

The presence of outliers can introduce bias into the statistical analyses and can increase the likelihood of Type 1 errors (Keslmann *et al.*2008), therefore all of the data was subjected to an outlier analysis within which the author visually inspected the frequency distributions and box plots to identify any extreme values within the variables. Seven extreme values were identified across the feasibility study (Study 1a) variables analysed, and four extreme values were identified within the small n side study (Study 1b) dataset. Following inspection, these values were deemed to be genuine responses from the participants and were not due to data entry errors. In response to the identification of outliers Field (2013) recommends that non-normally distributed data variables should be transformed to account for this, however, critics argue that transformations can reduce power and alter the nature of the data

(Osborne, 2013). Bakker and Wicherts (2014) propose an alternative method in which they recommend that outliers within non-normally distributed data are not removed and that non-parametric methods or the use of bootstrapping is considered, however, non-parametric tests can still be affected by extreme outlier scores. Unfortunately, as previously reported, bootstrapping methods could not be used due to the design of the study (mixed method), therefore to reduce the impact of these outliers on the distribution of the data, the extreme values were adjusted to be one unit above the next highest score in the data set, as recommended by Field (2013) (see Appendix T for table depicting descriptive statistics prior to adjustment of outliers).

3.1.2 Missing Data

Within the feasibility study dataset there were missing demographic data related to type of stroke, location of stroke and participants' occupation, however, this was not required for statistical analysis. Four missing data points were identified within two of the continuous variables (PERMA pre, FAI pre, PERMA post and FAI follow-up), these were replaced for that individual for that measure using their calculated mean score on that measure. Exploration of the small *n* side study dataset identified thirteen missing data points across the continuous variables, as with those identified in the feasibility study, all missing data points were replaced using the calculated mean scores.

3.1.3 Test for Normality

Within both studies, 1a and 1b, the majority of the variables analysed were within the acceptable range (-1.5 to 1.5) for skewness and kurtosis (Tabachnick & Fidell, 2007). Given the small sample size, the Shapiro-Wilk's (*W*) tests was used to test for univariate normality across the variable scores. The assumption of normal distribution is met if the *W* test is non-significant ($p > 0.05$). A review of box plots, histograms and normal Q-Q plots, in addition to the *W* test, indicated that the following variables within study 1a were not normally distributed ($p < .05$): Time since stroke (intervention and control group); Age left school (intervention and control group); and pre PERMA-P overall (intervention group). Within study 1b, the Age and Time since stroke variables were identified as not being normally distributed.

There is an increased risk of a Type 1 error (false positive result) if non-normally distributed data are analysed using a test that assumes normality (parametric tests), that said, McDonald (2014) reports that parametric tests are robust enough to be used when assumptions of normality are not met. Furthermore, parametric tests are more robust than non-parametric tests when used to analyse non-normally distributed data within small samples (Khan & Rayner, 2003).

As reported, the assumption of a normal distribution, as required for statistical analysis using parametric tests, was violated. However, taking in to consideration the reported robustness of parametric tests (Khan & Rayner, 2003), and following the recommended adjustment of the outliers, it was decided that the data would be statistically analysed using parametric tests.

3.2 FEASIBILITY STUDY (Study 1A)

3.2.1 Descriptives

3.2.1.1 Response Rate

Of the 48 participants assigned to the intervention and control group, a total of 20 (or 42 %) participants completed full data sets and attended four or more sessions, the final sample therefore consisted of ten intervention participants (8 survivors and 2 carers) and ten control participants (8 survivors and 2 carers).

3.2.1.2 Demographic Characteristics

3.2.1.2.1 Sample Demographics

The sample demographics are reported in Table 4 below.

Table 4. Sample age and time since stroke.

		<i>N</i>	Mean	SD	Range
Age	Total	20	63.4	8.7	48-80
	Female	8	66.8	11.3	50-80
	Male	12	61.1	5.9	48-69
	Stroke Survivors	16	63.6	9.2	48-80
	Carers	4	62.5	7.0	55-69
	Intervention Group	10	63.4	9.4	48-79
	Control Group	10	63.3	8.5	55-80
Months since stroke*	Total	16	19.6	17.8	1-58
	Intervention Group	8	15.6	16.5	1-53
	Control Group	8	26.8	21.7	4-58

*Stroke survivors only (*N*=16)

The demographic characteristics of the sample are reported in Table 5 overleaf. There were no significant differences regarding age, age left school and mean number of months since stroke ($p < 0.05$). The intervention group and control group did not differ significantly on any of the categorical variables using Mann-Whitney and Pearson's chi-square tests ($p < 0.05$).

Although not statistically significant, a greater proportion of the control group reported never experiencing low-mood- in comparison to the intervention group participants. Furthermore, twice as many participants within the intervention group reported sometimes experiencing symptoms of anxiety in comparison to the control group participants. Despite reporting experiencing anxiety and low mood, only 30% of the participants reported having received treatment for this, of those who did receive treatment the majority were within the intervention group (66.7%). Across the two groups the majority (63%) of stroke survivors reported experiencing mild communication difficulties and mild memory difficulties (56%) since their stroke. Of those that reported mild memory difficulties, the majority (78%) were within the intervention group.

Table 5. Demographic characteristics of intervention and control group.

Demographic Characteristic	Category	N (20)	%	Intervention (n=10)	Control (n=10)	Significance
Participant Type	Survivor	16	80.0	8	8	$\chi^2=.00, p>.05$
	Carer	4	20.0	2	2	
Gender	Male	12	60.0	6	6	$\chi^2=.00, p>.05$
	Female	8	40.0	4	4	
Mean Age (SD)	N/A	20	100.0	63.4 (9.4)	63.3 (8.5)	$t(18)=.025, p>.05$
Ethnicity	White British	19	95.0	10	9	$\chi^2=1.053, p>.05$
	Black Caribbean	1	5.0	0	1	
First Stroke*	Yes	14	87.5*	7	7	$\chi^2=.00, p>.05$
	No	2	12.5*	1	1	
Mean Time in Months Since Stroke (SD)*	N/A	16	100.0*	15.6 (16.5)	26.8 (21.7)	$t(10.74)= -2.19, p>.05$
Mean Age Left School (SD)	N/A	20	100.0	16.3 (0.9)	16.0 (1.2)	$t(18)=.414, p>.05$
Occupation	Employed	3	15.0	1	2	$\chi^2=.952, p>.05$
	Unemployed	3	15.0	1	2	
	Retired	14	70.0	8	6	
Living Circumstances	Alone	3	15.0	1	2	$\chi^2=4.286, p>.05$
	With someone not carer	6	30.0	5	1	
	With carer	7	35.0	2	5	
	With stroke survivor	4	20.0	2	2	
Communication Difficulties*	Not at all	5	31.25*	2	3	$U= 47.00, p>.05$
	Mild	10	62.5*	5	5	
	Severe	1	6.25*	1	0	
Memory Difficulties*	Not at all	4	25.0*	0	4	$U= 37.00, p>.05$
	Mild	9	56.25*	7	2	
	Severe	3	15.0	1	2	
Relationship Difficulties	Not at all	5	25.0	2	3	$U= 50.00, p>.05$
	Somewhat	10	50.0	6	4	
	Most Definitely	5	25.0	2	3	
Low-Mood	Never	9	45.0	3	6	$U= 44.50, p>.05$
	Sometimes	10	50.0	6	4	
	Often	1	5.0	1	0	
Anxiety	Never	4	20.0	0	4	$U= 30.00, p>.05$
	Sometimes	15	75.0	10	5	
	Often	1	5.0	0	1	
Mental-Health Treatment After Stroke	Yes	6	30.0	4	2	$\chi^2=.952, p>.05$
	No	14	70.0	6	8	

*Stroke survivors only (N=16), percentage calculated using total stroke survivors not whole sample

3.2.1.3 Dependent Variable Descriptive Statistics

As illustrated in Table 6, there were no significant differences between the variable mean scores (dependent variables) reported by the intervention group and the control group at baseline.

Table 6. Dependent variable descriptive statistics (post adjustment of outliers).

Measure	Phase	Intervention Group (<i>n</i> =10)	Control Group (<i>n</i> =10)	Significant Difference Between Pre Mean Scores (<i>t</i>)
		Mean (SD)	Mean (SD)	
PERMA-P (Overall)	Pre	6.24 (1.95)	7.03 (1.2)	$t(14.97) = .890, p > .05$
FAI (Total)	Pre	25.9 (8.28)	26.5 (10.71)	$t(18) = -1.40, p > .05$
HADS (Total)	Pre	14.00 (9.67)	12.60 (4.69)	$t(18) = .412, p > .05$
SWEMWBS (Total)	Pre	24.70 (4.97)	26.00 (3.23)	$t(18) = -.694, p > .05$

The means and standard deviations for each of the dependent variables are summarised in Table 7, see Appendix T for means and standard deviations prior to adjustment of outliers.

Table 7. Dependent variable descriptive statistics (post adjustment of outliers).

Measure	Phase	Intervention Group (<i>n</i> =10)	Control Group (<i>n</i> =10)	Combined (<i>n</i> =20)
		Mean (SD)	Mean (SD)	Mean (SD)
PERMA-P (Overall)	Pre	6.24 (1.95)	7.03 (1.2)	6.63 (1.62)
	Post	5.85 (1.96)	7.55 (1.02)	6.70 (1.75)
	Follow-up	6.38(1.62)	7.37(.64)	6.88(1.30)
FAI (Total)	Pre	25.9 (8.28)	26.5 (10.71)	26.20 (9.32)
	Post	28.2 (7.62)	25.6 (10.97)	26.90 (8.90)
	Follow-up	30.5 (4.01)	25.80(10.37)	28.15 (8.03)
HADS_T (Overall total)	Pre	14.00(9.67)	12.60(4.69)	13.30(7.43)
	Post	12.30(8.77)	14.60(8.87)	13.45(8.67)
	Follow-up	12.30(6.20)	15.60(4.88)	13.95(5.69)
SWEMWBS (Total)	Pre	24.70(4.97)	26.00(3.23)	25.35(4.13)
	Post	25.10(2.43)	23.90(3.41)	24.30(4.18)
	Follow-up	26.30(2.91)	25.10(2.42)	25.70(2.68)

3.2.2 Statistical Analysis

The following one-tailed hypotheses were tested:

- a. Participants attending the intervention group will report an improvement in their psychological wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the SWEMWBS.
- b. Participants attending the intervention group will report a reduction in their psychological distress (anxiety and/or depression) from baseline to follow-up compared to the waiting list control group, as measured using the HADS.
- c. A significant negative association between psychological distress and psychological wellbeing will be observed in the participants attending the intervention group, as measured using the HADS and the SWEMWBS.
- d. Participants attending the intervention group will report positive changes in their multidimensional wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the PERMA-Profiler.
- e. Participants attending the intervention group will report improvements in their daily functioning compared to the waiting list control group, as measured using the FAI.

A series of statistical analyses were conducted to test the above hypotheses, changes in mean scores over time on each of the dependent variables were used to undertake these analyses. Interactions between group (intervention or control) and phase (pre, post, follow-up) and associations between the variables were the key statistics focused upon within this analysis. The following paragraphs report how each of these hypotheses were tested using mixed design MANOVA's, ANOVA's and Pearson's Correlation Coefficient tests.

3.2.2.1 Hypotheses Testing

(a) Participants attending the intervention group will report an improvement in their psychological wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the SWEMWBS.

An increase in the mean SWEMWBS score (i.e. increase in wellbeing) from baseline ($M=24.70$, $SD=4.97$) to follow-up ($M=26.30$, $SD=2.91$) was observed in the intervention group, whereas a decrease in psychological wellbeing was reported in the control group from baseline ($M=26.00$, $SD=3.23$) to follow-up ($M=25.70$, $SD=2.68$). The statistical significance of these changes in mean

scores were examined using a 2x2x3 mixed design MANOVA. SWEMWBS (total) and HADS (total) mean scores across time were used to identify if there were any significant difference between the mean scores over time and to identify if there was an interaction between group (intervention or control) and phase (pre, post, follow-up). Homogeneity of variance was analysed using Box's Test of Equality, this was non-significant ($p > .05$), suggesting that there was equal variance across the intervention and control group. There were no significant differences between the groups regarding psychological wellbeing or psychological distress, $F(2,17) = .205$, $p = .817$, however, a significant effect of phase within subjects across both measures, SWEMWBS and HADS, was observed, $F(4,15) = 4.217$, $p = .017$. No significant interaction between group and phase was identified when the two dependent variables (SWEMWBS and HADS) were analysed together, $F(4,15) = 2.314$, $p = .105$.

A follow-up univariate mixed design ANOVA was conducted to examine if there was an interaction between group and phase on the SWEMWBS outcome measure, independent of the HADS.

Homogeneity of variance was tested across all phases using Levene's test, the test was significant ($p < .05$) for the SWEMWBS at baseline, $F(1, 18) = 4.447$, $p = .049$, therefore equal variance could not be assumed. However, as previously discussed, the F test is robust against unequal variance when the sample sizes are equal, thus Greenhouse-Geisser corrected test, an alternative corrected F -test was reported (Field, 2013). Adjustment for multiple comparisons was conducted using a Bonferroni adjustment value¹ ($p = .0125$). No significant interaction between group and phase was observed, $F(2, 36) = 2.83$, $p = .072$ ($p > .0125$). As illustrated in Figure 6, participants within the intervention group reported an increase in their psychological wellbeing over time, whereas the control group reported a decrease in their psychological wellbeing over time. However, these changes were not significant.

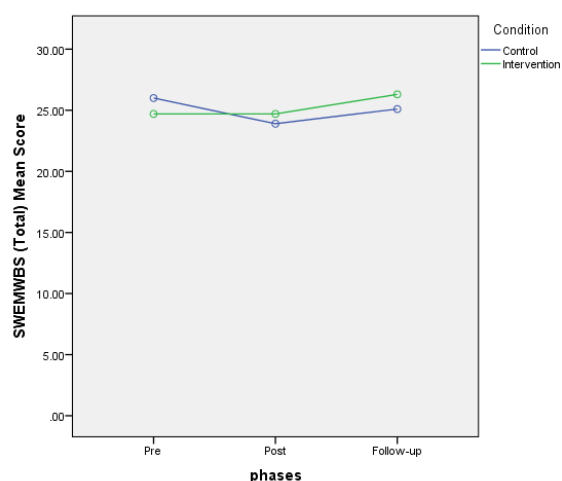


Figure 6. Comparison of mean group SWEMWBS (total) scores over time.

¹ Bonferroni adjustment = α/m ($0.05/4=0.0125$)

α = statistical significance level

m = number of hypotheses tested (number of individual ANOVA's conducted)

(b) Participants attending the intervention group will report a reduction in their psychological distress (anxiety and/or depression) from baseline to follow-up compared to the waiting list control group, as measured using the HADS.

With regards to psychological distress, as measured using the HADS, the mean scores on the HADS_T reduced in the intervention group from baseline ($M=14.00$, $SD=9.67$) to follow-up ($M=12.30$, $SD=6.20$). Conversely, the mean scores on the HADS_T increased in the control group from baseline ($M=12.60$, $SD=4.69$) to follow-up ($M=15.60$, $SD=4.88$). A follow-up univariate mixed design ANOVA was conducted to examine the significance of these changes in mean scores and to identify if there was an interaction between group and phase on the HADS (total) outcome measure independent of the SWEMWBS scores. Homogeneity of variance at pre, post and follow-up was tested using Levene's test, the test was significant ($p<.05$) for HADS at baseline, $F(1, 18) = 5.007$, $p=.038$, therefore equal variance could not be assumed. Mauchly's test of sphericity was non-significant ($p>.05$), thus there was no significant differences between the variances of differences. Using the corrected test, Greenhouse-Geisser, and the Bonferonni adjustment value ($p = .0125$) as above, no significant interaction between group and phase was observed, $F(2,36)=3.014$, $p = .062$, the hypothesis was therefore rejected.

Figure 7 illustrates that participants within the control group reported an increase in psychological distress over time in contrast to the intervention group who reported a decrease in psychological distress over time, however, these differences, although in the direction hypothesised, were not statistically significant.

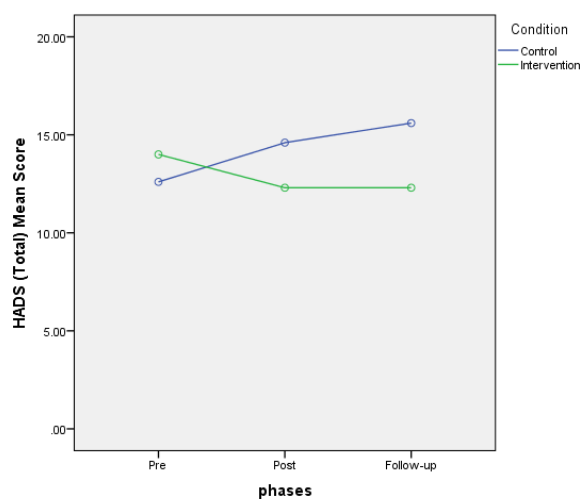


Figure 7. Comparison of mean group HADS (total) scores over time.

(c) A significant negative association between psychological distress and psychological wellbeing will be observed in the participants attending the intervention group, as measured using the HADS and the SWEMWBS.

A one-tailed (bivariate) Pearson's Correlation Coefficient was conducted to test the hypotheses that there would be a significant negative association between psychological distress and psychological wellbeing across the groups. Change in mean scores across the phases for each of the dependent variables (SWEMWBS and HADS) were used to conduct the analysis. The change in mean scores were calculated using the following area under the curve (AUC) formula:

$$\text{AUC} = ((\text{time2}-\text{time1}) \times (\text{measure2}+\text{measure1}) / 2) + ((\text{time3}-\text{time2}) \times (\text{measure3}+\text{measure2}) / 2)$$

$$\text{AUC} = ((35\text{days}-35\text{days}) \times (\text{Post_SWEMWBS}+\text{Pre_SWEMWBS}) / 2) + ((35\text{days}-35\text{days}) \times (\text{FU_SWEMWBS}+\text{Post_SWEMWBS}))$$

There are a number of assumptions that should be met when conducting a parametric correlation analysis, these include, normally distributed scores, a linear relationship between variables, an absence of outliers and homoscedasticity. Normality of the change scores was assessed through use of the W test, all variables included within the correlational analysis were normally distributed. With regards to linearity and homoscedasticity, the SWEMWBS change scores were plotted against the HADS-T change scores, each were visually inspected to check for linearity and equal scatter.

Although the pre SWEMWBS (intervention) variable scores were identified as being non-normally distributed, as reported in section 3.1.3, the overall SWEMWBS change scores were normally distributed, furthermore, Pearson's correlation coefficient (r) is deemed robust enough to be used to analyse non- normally distributed data within small samples (Khan & Rayner, 2003). A significant negative relationship between the mean change in scores was observed between psychological distress (HADS total) and psychological wellbeing (SWEMWBS total), $r = -.851$, $n=20$, $p>.001$. This significant finding indicates that wellbeing has a reciprocal relationship with psychological distress, as psychological wellbeing increases psychological distress decreases, thus the hypothesis was accepted.

(d) Participants attending the intervention group will report positive changes in their multidimensional wellbeing from baseline to follow-up compared to the waiting list control group, as measured using the PERMA-Profilier [PERMA-P].

Multidimensional wellbeing (PERMA) was measured using the PERMA-P, the overall wellbeing scores (and the subscale scores) were measured at three time points: baseline, 5-weeks post baseline and 10-weeks post baseline. Mean scores on the PERMA-P increased (i.e. greater overall wellbeing) from baseline to follow-up in the intervention group ($M=6.24$, $SD=1.95$; $M=6.38$, $SD=1.62$), however, an increase was also observed in the control group ($M=7.03$, $SD=1.2$; $M=7.37$, $SD=.64$). A mixed design ANOVA was conducted to examine the significance of the changes in overall mean scores and to test the hypothesis that participants within the intervention group would observe an increase in their multidimensional wellbeing over time. Levene's test was used to assess homogeneity of variance at baseline, 5-weeks post baseline and 10-weeks post baseline, it was non-significant ($p>.05$) for the pre PERMA scores, but, significant ($p<.05$) for the post and follow-up scores, therefore, homogeneity of variance could not be assumed. Mauchly's test of sphericity was significant ($p<.05$), this suggesting that there was a significant difference between the variance of differences across the two groups. Greenhouse-Geisser correction was subsequently used as the sphericity assumption was $<.75$ (Field, 2013). Using the Bonferonni adjusted p value ($p = .0125$), as previously detailed, no statistically significant interaction between group and phase was observed, $F(1.58, 28.43) = 1.57$, $p = .23$. Despite the observed differences in overall mean score between the groups depicted in Figure 8, these differences were not statistically significant and therefore the hypothesis was rejected.

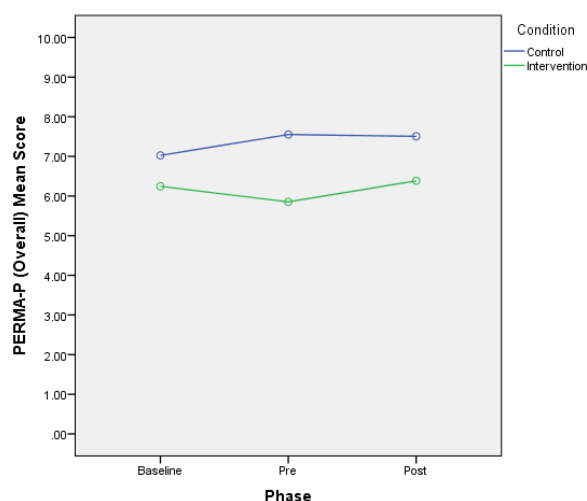


Figure 8. Comparison of mean group PERMA-P (overall) scores over time.

Although not formally listed as a hypothesis, it was anticipated that there would be a positive association between psychological wellbeing, as measured using the mean change scores on the SWEMWBS, and multidimensional wellbeing, as measured using the mean change scores on PERMA-P. It is possible that there is an overlap in some of the constructs assessed within each of the two wellbeing measures. Furthermore, given the hypothesis that there will be a significant negative association between psychological distress and psychological wellbeing, it was inferred that a similar relationship may be observed between psychological distress and multidimensional wellbeing. As with the previous analysis, areas under the curve scores were used to conduct the analysis. A one-tailed (bivariate) Pearson's correlation coefficient (r) test was conducted to examine the relationship between the PERMA-P overall and the two outcome measures (SWEMWBS and HADS) across the whole sample. A significant positive relationship between the mean change in scores across the phases was reported between the PERMA-P overall score and the SWEMWBS, ($r=.506, n=20, p<.05$), and a significant negative association between the PERMA-P and the HADS was identified, ($r= -.459, n=20, p>.05$).

(e) Participants attending the intervention group will report improvements in their daily functioning compared to the waiting list control group, as measured using the FAI.

The FAI was used to measure participants' daily living functioning abilities; the total functioning scores were measured at baseline, 5-weeks post baseline and 10-weeks post baseline. An increase in mean FAI (i.e. greater functional abilities) scores from baseline ($M=25.9, SD=8.28$) to follow-up ($M=30.50, SD=4.01$) was reported by the intervention group participants. Conversely, a decrease in mean FAI scores from baseline ($M=26.20, SD=10.71$) to follow-up ($M=25.80, SD=10.37$) was reported by participants in the control group. A univariate mixed design ANOVA was conducted to examine the significance of these changes in means and to test the hypothesis that the intervention group participants would experience improvements in their reported daily functioning skills in comparison to the control group participants. Mean overall FAI scores over time were used to examine if there was an interaction between groups over time. Homogeneity of variance was analysed using Levene's test of equality, this was non-significant ($p>.05$) for the pre and post measure scores, but was significant ($p<.05$) for the follow-up scores, therefore homogeneity of variance was not assumed. Mauchly's test of sphericity was non-significant ($p>.05$). Using the Greenhouse-Geisser corrected test and the Bonferroni adjusted p value ($p = .0125$), a statistically significant interaction between group and phase was identified, $F(2, 36) = 6.25, p = .005$. As illustrated in Figure 9 overleaf, there was a significant difference between the intervention group and the control groups reported daily

functioning over time, intervention group participants functioning increased over time whereas the control group reported a decline in their functional ability over time.

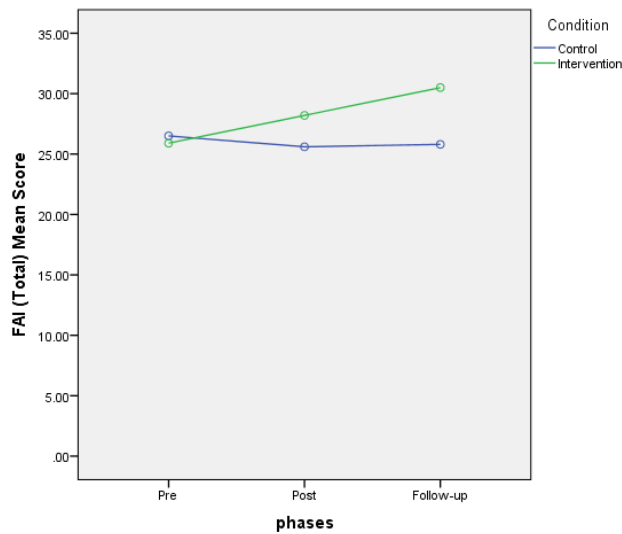


Figure 9. Comparison of mean group FAI (total) scores over time.

Although not hypothesised, given the significant interaction between group and phase observed, further analyses were conducted to explore if functional ability was associated with psychological wellbeing and psychological distress. A Pearson's correlation coefficient (r) test was conducted to examine the relationship between the FAI (overall) variable and the two outcome measures (SWEMWBS and HADS) across the whole sample. A significant positive relationship between the mean change in scores on the FAI (overall) and the SWEMWBS was reported ($r=.441, n=20, p<.05$), and a significant negative relationship between the FAI (overall) and the HADS ($r= -.392, n=20, p<.05$). These significant associations suggest that overall daily functioning has a reciprocal relationship with wellbeing and psychological distress; increased functioning increases wellbeing and reduces psychological distress.

3.2.3 Summary of Findings

In summary, within Study 1a no significant interaction between group and phase was identified for psychological wellbeing, thus, there was no difference in mean SWEMWBS scores over time between those who received the group intervention and those who did not. Increases in mean SWEMWBS scores over time were observed in the intervention group, however these were non-significant. No significant interaction between group and phase mean HADS scores were reported, a decrease in mean psychological distress scores was observed in the intervention group and an increase in distress within the control group over time, however, these differences were non-significant. As

hypothesised there was a significant negative relationship between psychological wellbeing and psychological distress, as measured using change scores, this suggests that there is a reciprocal relationship between psychological wellbeing and psychological distress, as wellbeing increases, psychological distress decreases. No significant interaction between group and phase was reported regarding multidimensional wellbeing, as measured using the PERMA-P, despite an increase in reported multidimensional wellbeing over time within the intervention group, this was not significant. As one might expect, there was a significant positive association between multidimensional wellbeing and psychological wellbeing, it is likely that there was overlap in the underlying constructs being measured. A significant interaction between daily functional abilities, as measured using the FAI, was identified between group and phase; the intervention group reported an increase in functional ability over time, whereas the control group reported a decline in their functioning. Furthermore, mean changes in daily functioning abilities were significantly positively correlated with psychological wellbeing, this suggesting that as functional abilities improved as did psychological wellbeing or vice versa. Daily functional ability was also negatively correlated with psychological distress, this highlights the possible reciprocal relationship between mood and functional ability, as functional ability increases psychological distress decreases. These findings have important implications for post-stroke rehabilitation, and highlights the importance of psychological wellbeing in stroke recovery, both physically and in terms of engagement in activities.

The implication of these findings and possible explanations for the absence of the significant findings anticipated are further discussed in section 4.2.1.

3.3 SMALL *n* SIDE STUDY (Study 1b)

3.3.1 Descriptives

3.3.1.1 Response Rate

Of the 17 participants who attended the group intervention sessions, 14 (83%) attended four or more sessions and provided complete datasets, the final sample consisted of twelve stroke survivors and 2 carers.

3.3.1.2 Study 1b Demographic Characteristics

3.3.1.2.1 Sample Demographics

The sample demographics are reported in Table 8 below.

Table 8. Sample age and time since stroke.

		<i>N</i>	Mean	SD	Range
Age	Total	17	63.0	10.1	44-82
	Female	9	66.9	11.2	55-82
	Male	8	58.6	6.9	44-68
	Stroke Survivors	13	63.7	11.3	44-82
	Carers	4	60.8	5.6	55-68
Months since stroke*	Total	13	19.8	18.5	1-61

*Stroke survivors only (*N*=13)

Table 9 overleaf provides a summary of the demographic characteristics of the sample. As reported in Table 3.4 over half of the participants reported experiencing mild memory difficulties since their stroke and a further 23% reported experiencing severe memory difficulties. The majority of the stroke survivors and carers within this sample reported experiencing anxiety and/or low-mood some of the time following the stroke. Despite the majority of the sample experiencing low-mood and/or anxiety, only 24% received support and/or treatment for this.

Table 9. Demographic characteristics.

Demographic Characteristic	Category	N (17)	%	Mean (SD)
Participant Type	Survivor	13	76.5	
	Carer	4	23.5	
Gender	Male	8	47.1	
	Female	9	52.9	
Mean Age (SD)	N/A	17	100	63.0 (10.1)
Ethnicity	White British	16	94.1	
	Black Caribbean	1	5.9	
First Stroke*	Yes	12	92.3*	
	No	1	7.7*	
Mean Time in Months Since Stroke (SD)*	N/A	13	100.0*	19.8 (18.5)
Mean Age Left School (SD)	N/A	13	76.5	16.1 (1.4)
Occupation	Employed	3	17.6	
	Unemployed	3	17.6	
	Retired	11	64.7	
Living Circumstances	Alone	8	47.1	
	With someone not carer	1	5.9	
	With carer	5	29.4	
	With stroke survivor	3	17.6	
Communication Difficulties*	Not at all	6	46.15*	
	Mild	6	46.15*	
	Severe	1	7.69*	
Memory Difficulties*	Not at all	2	15.38*	
	Mild	8	61.54*	
	Severe	3	23.07*	
Relationship Difficulties	Not at all	4	23.5	
	Somewhat	6	35.3	
	Most Definitely	7	41.2	
Low-Mood	Never	2	11.8	
	Sometimes	11	64.7	
	Often	4	23.5	
Anxiety	Never	5	29.4	
	Sometimes	11	64.7	
	Often	1	5.9	
Mental-Health Treatment After Stroke	Yes	4	23.5	
	No	13	76.5	

*Stroke survivors only ($N=13$), percentage calculated using total stroke survivors not whole sample

3.3.1.3 Dependent Variable Descriptive Statistics

The means and standard deviations for each of the dependent variables are summarised in Table 10 below. See Appendix T for summary of dependent variable descriptive statistics pre adjustment of outliers.

Table 10. Dependent variable descriptive statistics (post outlier adjustment).

Measure	Phase	Intervention Group (<i>n</i> =17)
		Mean (SD)
PERMA-P (Overall)	Pre	6.42 (1.34)
	Post	6.94 (1.41)
	Follow-up	7.14 (1.42)
FAI (Total)	Pre	28.21 (8.46)
	Post	30.29 (7.61)
	Follow-up	31.00 (8.18)
HADS_T (Overall total)	Pre	13.71 (8.35)
	Post	13.29 (7.42)
	Follow-up	11.93 (6.72)
SWEMWBS (Total)	Pre	23.50 (4.20)
	Post	25.00 (4.59)
	Follow-up	25.79 (4.73)
Weekly SWEMWBS (Total)	Week 1	23.50 (4.20)
	Week 2	25.55 (5.03)
	Week 3	25.58 (5.12)
	Week 4	27.14 (4.55)
	Week 5	26.75 (4.14)

3.3.2 Statistical Analysis

Following a review of the current evidence base regarding stroke, wellbeing, psychological interventions and the efficacy of PP interventions, the following one-tailed hypotheses were tested:

- f. Participants will report an improvement in their psychological wellbeing over the three phases using the SWEMWBS.
- g. Participants will report a reduction in their psychological distress (anxiety and/or depression) over the three phases using the HADS.
- h. A significant negative association between psychological distress and psychological wellbeing will be observed, as measured using the HADS and the SWEMWBS.
- i. Participants will report positive changes in their multidimensional wellbeing over the three phases using the PERMA-Profiler.
- j. Participants will report improvements in daily functioning over the three phases using the FAI.
- k. The regression of weeks and SWEMWBS will produce a significant positive slope.

A series of statistical analyses were conducted to test the above hypotheses, changes in mean scores on each of the dependent variables were used to undertake these analyses. The statistical tests undertaken to test the hypotheses are reported in the following pages, the result of each in relation to accepting or rejecting the hypothesis is discussed. The statistical tests chosen to test the hypotheses were as follows; ANOVA's, Pearson's Correlation Coefficient tests and Regression analyses.

3.3.2.1 Hypothesis Testing

3.3.2.1.1 Changes in mean scores across the phases

Univariate repeated measure ANOVA's were conducted to examine if there were any statistically significant changes in overall mean scores across the phases (pre, post, follow-up) for each of the variables measured using the SWEMWBS, HADS, PERMA-Profilier and FAI. A summary of these analyses is reported in table 11 below. As in study 1a, a Bonferonni adjusted p value ($p = .0125$)² was used to account for the multiple comparisons conducted.

Table 11. Repeated measure ANOVA's conducted to test hypotheses *f, g, i* and *j*.

Hypotheses		F Test
f.	Participants will report an improvement in their psychological wellbeing over the three phases using the SWEMWBS.	$F(2, 26) = 4.083, p = .029$
g.	Participants will report a reduction in their psychological distress (anxiety and/or depression) over the three phases using the HADS.	$F(1.370, 17.804) = 1.476, p = .250^*$
i.	Participants will report positive changes in their multidimensional wellbeing over the three phases using the PERMA-Profilier.	$F(1.27, 16.535) = 5.455, p = .026^*$
j.	Participants will report improvements in daily functioning over the three phases using the FAI.	$F(2, 26) = 3.268, p = .041$

*Mauchly's test of sphericity violated therefore Greenhouse-Geisser correction used.

Using the Bonferonni adjusted p value ($p = 0.0125$), no significant changes in reported psychological wellbeing ($F(2, 26) = 4.083, p = .029$), psychological distress ($F(1.370, 17.804) = 1.476, p = .250$), multidimensional wellbeing ($F(1.27, 16.535) = 5.455, p = .026$), and daily functioning ($F(2, 26) = 3.268, p = .041$) were observed across the phases. Thus hypotheses *f, g, i* and *j* were rejected.

Although in the direction hypothesised, participants did not report a significant increase in psychological wellbeing, multidimensional wellbeing and daily functioning over time and did not

² Bonferonni adjustment = α/m ($0.05/4=0.0125$)

α = statistical significance level

m = number of hypotheses tested (number of individual ANOVA's conducted)

report a significant decrease in psychological distress over time. Though the findings were in the direction hypothesised, one cannot accurately conclude that these reported improvements were due attendance at the group as there was no comparison control group. Secondly, these reported improvements may be the result of spontaneous recovery or post-traumatic growth.

3.3.2.1.2 Associations between variables

To test the hypothesis that there would be a significant reciprocal relationship between psychological wellbeing and psychological distress (hypothesis *h*), a one-tailed (bivariate) Pearson's Correlation Coefficient was conducted. The change in mean scores across the phases (pre, post, follow-up) were calculated for each of the dependent variables (SWEMWBS and HADS) using the previously described AUC formula. The AUC scores were used to conduct the correlation analysis.

Normality of the change scores was assessed through use of the *W* test, all variables included within the correlational analysis were normally distributed. With regards to linearity and homoscedasticity, the SWEMWBS change scores were plotted against the HADS-T change scores, each were visually inspected to check for linearity and equal scatter, both variables were normally distributed following the adjustment of the outliers, as reported in section 3.1.1. A significant negative relationship between the mean change in scores was observed between psychological distress (HADS total) and psychological wellbeing (SWEMWBS total), $r = -.876$, $n=14$, $p>.001$. This significant finding suggests that psychological distress and psychological wellbeing may have a reciprocal relationship, as depicted in Figure 10; as psychological distress decreases psychological wellbeing increases and vice versa, thus hypothesis *h* was not rejected.

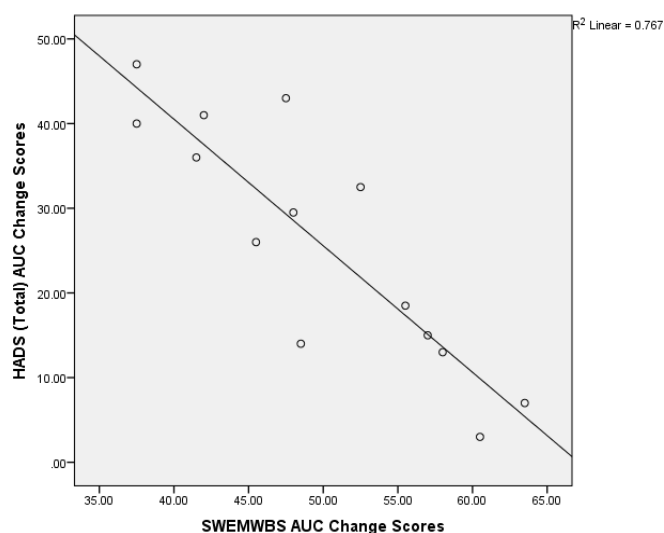


Figure 10. Association between mean change scores in SWEMWBS and HADS over time.

As reported in the feasibility study data analysis (section 3.2), although no formal hypotheses made, it was expected that there would be a positive relationship identified between psychological wellbeing (SWEMWBS mean change scores) and multidimensional wellbeing (PERMA-P mean change scores). It was also anticipated that given the strong negative association between psychological wellbeing and psychological distress identified, there too would be a similar relationship identified between psychological distress and multidimensional wellbeing. As with the previous analyses, AUC scores were used to conduct one-tailed bivariate Pearson's correlation coefficient (r) tests. A significant positive relationship between psychological wellbeing (SWEMWBS) and multidimensional wellbeing (PERMA-P) was reported ($r=.856, n=14, p<.05$), and a significant negative association between psychological distress (HADS Total) and multidimensional wellbeing (PERMA-P), ($r= -.680, n=14, p>.05$). This suggests that as multidimensional wellbeing increases psychological wellbeing also increases, furthermore, as multidimensional wellbeing increases psychological distress decreases.

Further analyses were also conducted to explore if changes in functional ability were associated with changes in psychological wellbeing and psychological distress using bivariate Pearson's correlation coefficient (r) tests. A significant positive relationship between functional ability mean change in scores and psychological wellbeing was reported ($r=.688, n=14, p<.05$), and a significant negative relationship between daily functioning and psychological distress ($r= -.752, n=14, p<.05$). These significant findings suggest that daily functioning is associated with psychological wellbeing, thus as functioning ability increased as does psychological wellbeing and vice versa. Secondly, as daily functioning ability increases psychological distress decreases. These findings have important implications for post-stroke rehabilitation. Given the significant associations identified, further Bivariate Pearson's correlation coefficient (r) tests were conducted to examine the relationships, if any, between the subscales of the FAI (Domestic, Leisure/Work, Outdoors) and psychological wellbeing and psychological distress. A significant positive relationship was reported between the Leisure/Work variable and psychological wellbeing, ($r= .867, n=14, p<.01$) and the Outdoors variable and psychological wellbeing, ($r= .6112, n=14, p<.05$), thus as engagement in leisure, work and/or outdoor activities increases psychological wellbeing increases. Significant negative associations were observed between psychological distress and the Leisure/Work variable, ($r= -.803, n=14, p<.01$) and psychological distress and the Outdoor variable, ($r= -.839, n=14, p<.01$).

3.3.2.1.3 *Relationship between sessions and psychological wellbeing*

In order to test the hypothesis that the regression of weeks and SWEMWBS would produce a significant positive slope (hypothesis k), a simple linear regression analysis was performed to examine

participants' weekly SWEMWBS scores. The following equation was used to calculate the linear regression:

$$Y = a + bX^3$$

$$\text{Weekly SWEMWBS Score} = 23.17 + 0.84 \times \text{Week}$$

Week was identified as a significant predictor of psychological wellbeing as measured using the SWEMWBS, $F(1,62) = 4.552$, $r^2 = .068$, $p = .038$. Thus, 6.8% of the variance in scores in psychological wellbeing can be accounted for by this variable's relationship with the week number (i.e. week1-week5). Furthermore, this regression model is a significantly better predictor of weekly SWEMWBS scores than the mean value of weekly SWEMWBS. As illustrated in Figure 11, a significant positive slope, $b_1 = .843$ was produced, therefore, the hypothesis was accepted. There was a positive correlation between week and psychological wellbeing, the majority (79%) of participants reported an increase in psychological wellbeing across the five weekly sessions.

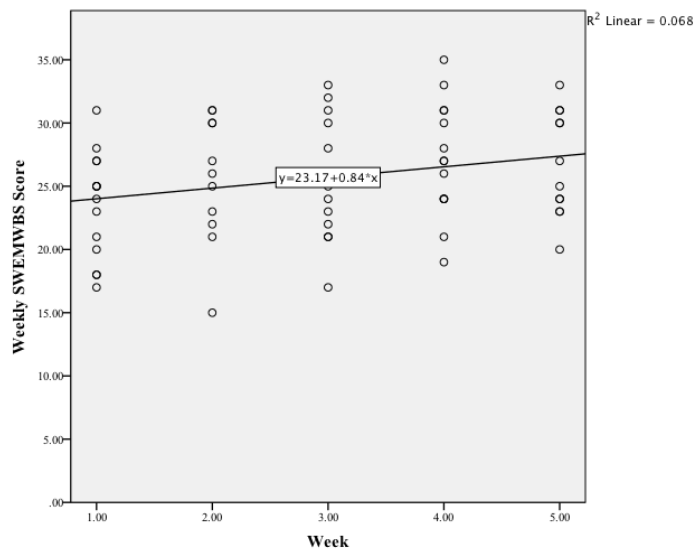


Figure 11. Comparisons of weekly SWEMWBS scores between participants over time.

³ X is the explanatory variable and Y is the dependent variable. The slope of the line is b, and a is the intercept.

3.3.3 Summary of Findings

Contrary to the hypotheses, although in the direction anticipated, no significant positive changes in participants' psychological wellbeing, multidimensional wellbeing and daily functioning abilities were reported over time. Secondly, no significant reduction in psychological distress was observed. A series of one-tailed bivariate Pearson's correlation coefficient (r) tests identified the following significant associations between the variables: a significant negative relationship between psychological wellbeing and psychological distress; a significant positive relationship between multidimensional wellbeing (PERMA-P) and psychological wellbeing (SWEMWBS); a significant negative association between multidimensional wellbeing (PERMA-P) and psychological distress (HADS); a significant positive relationship between daily functioning (FAI) and psychological wellbeing (SWEMWBS) and a significant negative association between daily functioning (FAI) and psychological distress (HADS). Further analysis indicated the Leisure/Work and/or Outdoor subscales of the FAI were the two subscales that were significantly correlated with psychological wellbeing (SWEMWBS) and psychological distress (HADS). As engagement in leisure, work or outdoor activities increased psychological wellbeing increased and psychological distress decreased. The final hypothesis tested (hypothesis k) was regarding the regression of weeks and SWEMWBS, a significant positive slope was observed, this suggesting that there was a positive relationship between week and overall mean SWEMWBS scores reported. Week (session number) was predictive of the SWEMWBS score.

3.4 THEMATIC ANALYSIS

Thematic analysis was used to analyse the qualitative data collected at a focus group conducted five weeks after the intervention. The purpose of the focus group was to complement the quantitative data collected and to further explore the participants' experiences of the intervention. Furthermore, it was hoped that this would inform the development of future community-based psychological interventions for stroke survivors and carers. A semi-structured interview schedule was used to guide the focus group (see Appendix R), these included broad questions such as '*What did you like about the group sessions?*' and '*Was the group what you expected?*'. A sample of the focus group transcript can be found in Appendix S.

Ten participants attended the focus group (eight stroke survivors and two carers). The data generated was analysed to identify themes across the participants, these were selected by the author and subsequently peer-reviewed to ensure validity. Five primary themes were identified: Course arrangements, Learning, Hidden impact of stroke, Connectedness, Awareness. Each of the five themes has a number of subthemes which further delineate the experiences of the participants, as depicted in Table 12 overleaf. Exemplary quotes from the participants have been included within the following narrative to provide evidence of each of the themes and subthemes.

Table 12. Themes and subthemes identified using a Thematic Analysis approach.

Theme	Subthemes
Course Arrangements	Number of sessions
	Duration of sessions
	Teaching methods
	Participants
Learning	Skills
	From others
	Relevant and adapted
Hidden impact of stroke	No-one understands
	Cognitive difficulties
	Psychological impact
	Gaps in care and information provided
Connectedness	Camaraderie
	Not alone
	Strength and inspiration within the group
Awareness	Loss
	New Perspective
	Acceptance

3.4.1 Themes

3.4.1.1 Course Arrangements

The purpose of the focus group was to elicit feedback regarding participants' experience of the intervention and to provide guidance regarding the evolution of any future groups. As evident within this analysis, the majority of the discussions largely focused on the relational aspects of the group sessions, skills learned and new perspectives gained. The participants appeared less comfortable providing a critique of the intervention. That said, participants did spend time discussing the length of the sessions, the teaching methods used and the importance of having a 'mix' of participants within the group. The overarching theme of Course Arrangements consisted of four subthemes: Number of sessions, Duration of Sessions, Teaching Methods, and Participants.

3.4.1.1.1 *Number of Sessions*

With regards to the number of sessions, participants reported they felt “disappointed” when the sessions were over. A number of participants said the intervention was not long enough and that they would have benefitted from additional sessions. Given the participants reported cognitive difficulties, in particular memory difficulties, additional sessions may have consolidated their learning, and given them more opportunity to practice some of the skills learned.

“I think I was disappointed when it ended because I was...only because I was enjoying it so much. I personally think we could have done with another two sessions.” Stoke survivor S3

“I missed a week because I had a hospital appointment or something so I only had four. But I just felt I was just tuning into it when it came to an end.” Stroke Survivor S4

“I think it was a little bit short.” Stroke survivor S2

“...I think at least two more sessions, as far as I’m concerned.” Stroke Survivor S7

3.4.1.1.2 *Duration of sessions*

The length of the sessions was identified as an important subtheme during the focus group, the time allocated for each session was two hours, however, the sessions frequently over ran. Both the facilitators and the participants said that they would have liked the sessions to have been longer to have allowed for more time to digest and discuss the content of the session, more time to have had more informal conversations with the other participants and more time to speak individually with the facilitators after the sessions. A number of participants indicated the impact of their cognitive difficulties on their ability to ingest the content of the sessions, for example, *“...it takes me a while to get things into my head...”*

“we ran out of time almost every session. Probably because some of us who talk to much.” Stroke Survivor S3

“I think what would be nice, if it’s possible, is to run 10:00 until 12:00 and then rather than just having a short coffee break, it’s maybe have a half-hour break, where people can chat and then come back for one more hour, if time permitting for everybody. I’m not saying that everybody could do that. But I think it gives you time...because with me, it takes me a little while to get things into my head. So if you get that half an hour when you can chat, it might trigger some more off.” Stroke Survivor S4

“I know we stop and have a coffee break but it seems to end and then everybody’s gone. And you’ve got all these thoughts going through your mind when we want to talk to each other or talk to you. So either do it, half way through or do it at the end.” Stroke Survivor S5

3.4.1.1.3 Teaching Methods

The content of the sessions was delivered using a PowerPoint presentation, group discussions and group activities. The participants reported that they benefited from having the PowerPoint slides in conjunction with the other teaching method. Participants indicated the need for the content of the sessions to be supported with a verbal narrative, this was particularly true participants who had acquired reading difficulties since their strokes.

“Oh no, we needed it [PowerPoint presentation].” Stroke Survivor S3

“I think the fact that you were explaining it because we do have difficulties reading it and taking it in. The fact that you’re talking about it, for me, made it easier to understand.” Stroke Survivor S7

“... you were talking about it as it was coming up, which was helpful because if it just comes up in writing, I haven’t got a diddly, you know. So, I mean, the spoken word as well as the PowerPoint, it works a lot easier.” Stroke Survivor S10

“I think quite a few people have a difficulty reading and retaining the information and understanding the information, so I think talking about it gives you a far better understanding.” Stroke Survivor S4

3.4.1.1.4 Participants

Within the focus group there were discussions regarding the ‘mix’ of participants that attended the group sessions. There was a consensus of opinion that it was beneficial to have a range of individuals attend the sessions, who were at different stages of their recovery, as it provided a ‘yard stick’ as to what is possible in terms of recovery. Participants also highlighted the uniqueness of strokes, and how individuals may experience challenges at different times throughout their recovery, not just in the initial few months following the stroke. Within this same discussion, participants reflected on the value of having carers attend the sessions and acknowledged that carers are sharing the experience with you following a stroke.

“anybody who’s got a partner, they’re sharing it with you anyway, so it just...I didn’t even think about the fact that partners were here, you know? It didn’t stop me from saying anything, not that much would.”

Stroke Survivor S8

“It’s much more helpful having a mix.” Stroke Survivor S10

“sometimes different, people experience different things, particularly psychologically at different times. So it’s then sort of quite nice to [inaudible 00:35:52] earlier for me, later for me. Every stroke is different.” Stroke Survivor S2

“You can have a yard stick then and say he can do that. Or I want to do what he can do.” Stroke survivor S8

3.4.1.2 Learning

This theme was subdivided into three subthemes: Skills, Learning from others, Relevant and adapted. The imparting of information from both the group facilitators and other group members was central to individuals’ learning within the group sessions. Participants reported that prior to attending the group sessions they did not have the “coping mechanisms” they required, but that, since attending the sessions, they now feel better equipped and able to apply the skills. A number of participants said that speaking to others at the group enhanced their learning opportunities and encouraged them to think of alternative ways to manage some of their difficulties. Within the group, a number of participants had previously independently sought support for their psychological difficulties, but, they reported that this was not helpful as it was not directly relevant to their experiences of ‘stroke induced’

psychological difficulties. Participants also spent time reflecting on the challenges of meeting all participants' needs within a group based intervention as each person has their own individual needs.

3.4.1.2.1 Skills

A few of the participants reflected that having a framework and structure throughout the sessions was particularly helpful and aided their learning. One participant reported that for them the most useful aspect of the group sessions was learning about their strengths, another reported it was being able to reframe negative experiences, and a few were unable to identify what was most useful and instead reported that it was a “string of things” that had collectively been helpful to them.

“I like having that PERMA thing to remember was helpful; it was a bit more like structured...” Stroke survivor S3

“Giving me coping mechanisms, that’s what I find useful...whereas I thought [before], “oh, I can’t cope with this” and then it gives you little ways of coping with different things. That’s what I found. It gave me quite a lot of coping strategies and that’s what I wanted.” Stroke Survivor S4

“...all the groups, and yours in particular, has given me these coping mechanisms that I don’t know where else I would have gotten these from.” Stroke survivor S5

“All along there were little lights coming on, you know? So it’s not a case of one Eureka moment. But it was all of the string of things happening. All the little ones.” Stroke survivor S7

“I have to say, for me, it was that analysis –you know the 20 personal strengths that was quite revealing. In a lot of ways, it confirms certain things but then, it highlighted other things, you know...” Stroke survivor S7

3.4.1.2.2 From Others

During the focus group session participants said that they had learned how others had coped with similar difficulties to themselves which had helped them to “get out of” their own problems. One of the carers who attended the group reflected on seeing other stroke survivors coping on their own and

how this gave her hope. This was particularly pertinent to her own experience as she had felt anxious about leaving her husband at home during the day.

“by coming here, I can see that people can cope on their own, you know?” Carer S9

“Everybody knows each other or met each other. And we all...somebody has trouble doing this and somebody has trouble doing that. The thing, you know, that’s how it’s done. And everybody helps everybody else. They may not think they do but you know, by listening to other people and their problems. You find out how to get out of your own problems.” Stroke survivor S2

“I think it’s nice to listen to other people’s experiences as well, empathise with them and learn from them as well.” Stroke survivor S5

“You can have a yard stick then and say he can do that. Or I want to do what he can do.” Stroke survivor S8

3.4.1.2.3 Relevant and Adapted

With regards to how psychological interventions should be delivered and their content, participants highlighted the importance of the sessions being relevant to stroke, not mental health in general. For example, participants expressed that they felt they did not “fit” in other more generic groups delivered by mental health services. Within the group participants reflected on their own additional needs, i.e. acquired reading and writing skills, reduced concentration skills and memory difficulties experienced by some, and the challenges of a group based intervention meeting all of their needs.

“I went on a course with for managing depression as there was nothing else, but that wasn’t really what I wanted because the people who were there on that course...And I was there for a different reason. I was...things affected me because of my stroke. So to find that there is...there are groups and there are people that can help with the psychological thing, to me, made a big difference.” Stroke survivor S4

“So the fact that it was particularly...it was the stroke-related group so everyone’s...that the issues and the problems and the challenges people having day-to-day were as a result of the stroke, meant that it was much more relevant...” Stroke survivor S7

“...although MIND offer courses, they’re not relevant. I didn’t find it was relevant to me having had a stroke. Because there were people there who self-harmed and they’ve been...had mental illness for a long, long time. And I didn’t...I don’t want to sound snobby, but I didn’t fit in to that group and I didn’t get much from it. But I’ve had so much from your types of groups. So thank you.” Stroke survivor S2

“if you want to get more out of people, you talk to the mass in the best way possible. That’s a challenge because...with us strokies, we’ve all got different challenges. So how to find the one common denominator is difficult.” Stroke survivor S3

3.4.1.3 Hidden Impact of Stroke

Discussions regarding the ‘hidden’ non-physical effects of having a stroke featured regularly throughout the weekly group sessions and during the focus group. Participants reported that others did not understand or appreciate the non-physical effects of the stroke, this was particularly pertinent for those who were experiencing ongoing psychological and/or cognitive difficulties such as impaired memory. A number of participants talked about their experience of their psychological difficulties following their stroke and the lack of information and support available to meet their psychological needs. Within this theme four subthemes were identified: No-one else understands, Cognitive difficulties, Psychological impact, Gaps in care and information provided.

3.4.1.3.1 No-one understands

A number of participants reflected on their experience of not being understood by friends, family and professionals. There was a consensus amongst the participants that only those who had had a stroke could truly understand and appreciate the impact it has on your day to day life and on you as an

individual. Participants made reference to the ‘unseen’ aspects of a stroke that make it harder for others to understand what they may be going through.

“There’s loads you can’t see, you know, no-one can see what you’re going through.” Stroke survivor S3

“I don’t have the physical effects of the stroke but I do have the psychological effects. And people would look at me and say, ‘Well, you look well. There’s nothing wrong with you.’ And I just like to say, ‘Well, would you like to get into my head for a day and just live in my head to see?’ Stroke survivor S4

“The only people that really understand stroke are the people who actually had a stroke. You can try. You can try all you like; you can’t get inside the stroke person’s head.” Stroke survivor S7

3.4.1.3.2 Cognitive Difficulties

As previously discussed within chapter 1, strokes can affect an individual in a number of ways including physically, psychologically and cognitively. The less obvious ‘hidden disabilities’ such as impaired executive functioning, memory, attention, and mood disturbances are often overlooked (Cao *et al.* 2007). For some, the residual impairments may be mild, however for others they can have a profound impact on their daily functioning. Although no participants within the group were identified as having ‘severe’ cognitive impairment, a number of them did identify themselves as having mild to moderate difficulties with a range of cognitive skills. These difficulties included short-term memory problems, reduced concentration skills, expressive speech difficulties and acquired reading and writing difficulties.

“I’ve got problems with my memory now which seem to be getting worse.” Stroke survivor S4

“I find it [talking] difficult, particularly if I’ve been alone in my room and there hasn’t been anybody to talk to. And I find it difficult to get it myself in the mood for talking to them...” Stroke survivor S5

“I find I[’ve] got to read things four maybe five times before it sort of stays in there.” Stroke survivor S3

“Having it all in writing is fine, but I’m dyslexic so I can’t read them, but I can tell you what letters are here, but what they actually say, I haven’t got a clue...I used to be able to read perfect, but now just ... you could be writing anything. I can probably tell you what the letters were, but what it actually says is...” Stroke survivor S10

3.4.1.3.3 *Psychological Impact*

The psychological impact of stroke was discussed within chapter one. An estimated 33% of survivors experience depression (Hackett *et al.* 2005) and a further 20% experience high levels of anxiety (Campbell Burton *et al.* 2013). Furthermore, it is estimated that over half of stroke carers experience low mood and/or anxiety (Low *et al.* 1999). During the group sessions and at the focus group, a few participants reflected on the unexpected psychological impact of their stroke, with an emphasis on not understanding what was happening to them at the time, believing they were “going mad” and the unexpectedness of the psychological impact it had on them. Of those who did share their experience of the psychological difficulties, the majority reported experiencing low mood. In line with the literature (Turner-Stokes & Hassan, 2002), in addition to any short-term or immediate psychological effects, some don’t become apparent until up to six months after the stroke.

“It’s understanding what’s going on in your brain and in your mind. Because I thought, at one stage, I honestly thought I was going mad. So, to realise that you’re not going mad and that there’s reasons for that...I didn’t think there would be any physical...psychological problems...I was told I shouldn’t have fatigue because I’d only had a minor stroke. And then that led me on the road to depression...and that slope is so quick to get there, you don’t realise till you are down at the bottom. You slide down so quick.”
Stroke survivor S4

“... I think, for me, the emotional and psychological side of it didn’t kick in until about six months after the stroke. So, I think you’re in this limbo land and you’re thinking, ‘I’m fine, I’m going to get back to the way I was.’ And then suddenly, it was six months later that it hit me.” Stroke survivor S3

3.4.1.3.4 *Gaps in care and information provided*

Within the group there was a consensus that they as individuals did not feel psychologically prepared for the reality of life after a stroke when discharged home from hospital. Furthermore, individuals expressed the view that they did not feel enough on-going support was provided and that there was a paucity of information regarding what they might expect in terms of their recovery and difficulties they may encounter. A number of participants reflected that had they not been “self-motivated”, they would not have received the support they have needed nor would they have known about community based services available.

“...there’s so many books and information available for people who have the physical effects of a stroke. But I found it very difficult to get information and help on the psychological effects of a stroke.” Stroke survivor S5

“...they should say things like, you may experience this, you may experience that; you might not. But at least if that happens to you, you understand it and you don’t think you’re going crazy or going mad from the psychological side of it.” Stroke survivor S4

“...I think I was just very much left in the dark and had I not taken it upon myself to try and find out more and contact the Stroke Association, I don’t know where I would be today.” Stroke survivor S2

3.4.1.4 Connectedness

Throughout the group sessions the ‘connectedness’ between the participants was apparent. Participants made frequent reference to this and it undoubtedly had an impact on their overall experience of the group based intervention. The participants reflected on the importance of feeling connected to others who understood what they were going through, who had an insight into some of the difficulties they had or continued to experience, who could offer support and be a source of inspiration. The theme *Connectedness* was subdivided into the following three themes: Camaraderie, Not alone, Strengths and inspiration within.

3.4.1.4.1 Camaraderie

Participants expressed that it was “the camaraderie” that they liked most about the group intervention. They reflected on the experience of being “in a group together”, the importance of having time to talk to others and how they felt they supported and encouraged each other. Participants were able to recognise the benefits of it being a “friendly group” which enabled participants to have the confidence to contribute and share their experiences.

“I think camaraderie. All of us getting together and have a good chat and a chin-wag, teamwork. It’s not the sort of thing you enjoy on a questionnaire. It’s something you got to be in a group together and experience each and other...each person’s input.” Stroke survivor S2

“I think in these groups we’ve opened up a bit more...I think we’re able now because we know each other and we know you to say, “Well, actually, I do have a problem with this. I do have a problem with that.” Stroke survivor S8

“You don’t know normally hear E but E spoke up more in this group and he says things. So, it is a very friendly group. We all go on really well and we enjoyed all the sessions.” Stroke survivor S4

“I think we just bounce off each other and encourage one another.” Stroke survivor S3

3.4.1.4.2 Not alone

Participants emphasised that within their own lives they did not feel they were understood, but they said that within the group they felt understood and that they were not alone in the difficulties they had or were currently experiencing following their stroke.

“...sometimes you think, I’m the only person who’s feeling like that or experiencing that and then you realise that you’re not.” Stroke survivor S5

“...you know everybody in that room is suffering with the same type of thing. All their memories are not brilliant. And it is a good group because everybody sort of takes the mick out of everybody...you know, it’s all camaraderie. If you can’t remember it, somebody else will...” Stroke survivor S10

3.4.1.4.3 Strength and inspiration from within

Recognising individual strengths was a core element of the group intervention, and throughout the weekly sessions participants were increasingly more able to recognise their own strengths and the strengths of other group members. During the focus group participants reflected on some of the

strengths of the group members and the growth that they had observed in others. Group members reflected how other members within the group had been a source of inspiration to them and given them encouragement to be able to manage some of their own difficulties.

“...these people aren’t the sort of people that [say]we’re done...they’re into self-help anyway. We’re very lucky that well, I think we are, that most of us can speak and we can probably see quite well. And with that, we don’t want to rely...We all thought we had perseverance. We do. We’re very strong mentally. Some others not quite so, physically but we’re a strong group. We really are.” Stroke survivor S2

*“I’ve seen improvements in members of the group. Without naming names... names but **B** I’m thinking of. And she...all she wanted to do was to take her grandchildren on the bus and she’s been able to do it.” Stroke survivor S7*

*“I’ve seen a big difference in **E** because he didn’t say anything and when you were away he was quite chatty and what you (Overlapping Conversation) – it was lovely – and what you have to say, it was lovely, **E** and meant a lot...what he come up with are little gems, I think.” Stroke survivor S4*

*“**C** is always positive, mentally positive and strong. You have the physical problems but I find things that **C** and other people have said, has given me a bit of inspiration because I got the psychological problems.” Stroke survivor S3*

3.4.1.5 Awareness

Over the course of the sessions there were moments where participants became aware of shifts in the perspective or an awareness of their newly acquired acceptance regarding what had happened to them and the residual difficulties they were experiencing. Participants spent time reflecting on these positive moments in the focus group session. Within the focus group there were also discussions regarding the awareness of the reality that their lives had changed and will never be the same, and of the things they feel they have lost since the stroke. These discussions reflected the perspectives of both stroke survivors and carers. The overarching theme of Awareness consisted of three subthemes: Loss, New Perspective, and Acceptance.

3.4.1.5.1 Loss

Across the participants there was a resounding sense of loss regarding the ‘old self’ and things they could no longer do, such as driving or work. Participants shared their sense of loss and empathised with one another. For some, the sense of loss was profound, whereas for others this was less so. One participant reflected that although their life had changed, they experienced a sense of being “reborn” and having a new sense of self as being a positive experience. Carers within the group contributed to the discussions highlighting the far reaching impact of the stroke beyond the individual themselves. They offered insights into how their lives had changed, their new role and having to adapt to being with their partner 24 hours a day.

“...like me, people here are no longer able to drive. Well, that’s a big issue. That’s a big part of your independence, just being...It’s been terrible sometimes.” Stroke survivor S8

“The thing is, losing my car has cut me, you know, sort of the base of me.” Stroke survivor S5

“I still think, why me, why was I chosen to be in this? Sorry. That’s how I am, really. What am I being thankful for? I can’t work, I [not] goin’ to be able to do my old job anymore. My life’s completely changed. The new me. We’re all new people now, we’re all reborn, the old person we were is gone.” Stroke survivor S3

“I worked fulltime and I wasn’t due to retire, I would have liked to have retired. When A had the stroke, I, within the year, I didn’t actually go back to work after he’d had the stroke and I just stayed at home to look after him and I finally retired. It’s a huge, huge difference. It’s made...it’s been okay. It’s been okay because we get on very well anyway, but yeah, it’s a completely different lifestyle that we’re living now than we did when we were working. We’re seeing each other 24 hours a day. (Overlapping Conversation) Yeah. Whereas before, it was maybe a couple of hours in the evening...” Carer S11

3.4.1.5.2 New Perspective

There was an awareness amongst the participants that they had experienced a shift in their perspectives since attending the intervention sessions. This had, typically, been a positive change from a negative perspective focused on their limitations to one of optimism, positivity and an emphasis on their personal strengths and things they could do. These shifts in perspectives were encouraged both within the group by other group members, but also via the content of the sessions

and the skills that the participants were taught. Within the focus group, participants spoke about a change in their “mentality” and being more aware of the “things that mean more” and enable a deeper sense of wellbeing. One participant talked about how they had changed the way they think about things and have excluded some negative self-critical phrases from their vocabulary range and are actively trying to be kinder to themselves. One participant demonstrated a growth in her resilience and reflected on her ability to ‘bounce back’ quicker and recognise that the ‘bad days’ will pass.

“There’s a whole list of things we can’t do, but there’s another list of things we can do and when we do it, how we’d feel about it. That’s not something anybody can measure. And if you give me £5.00, that’s great, yeah, [inaudible 00:57:53] thanks. Once it’s spent, it’s gone. The things that mean more to us are things that give us something more in a longer term time, and that’s what I have learnt.” Stroke survivor S7

“...it’s going outside and it might be a cloudy day, but look at what else is there. Its springtime and I love daffodils and seeing all the daffodils there. And now, I can look at the clouds and think, oh, look at the shape of that. So, it’s only because of things that you said and I think, oh yeah, you know? All right, it’s a miserable day, but what else can I see? Reframing things and looking for the positive has really helped me.” Stroke survivor S3

“It’s just, I think I’ve got rid of words from my vocabulary like “I can’t do this” or “I should do that and I ought to do this”. And it’s a case of if I get up in the morning and I’ve got energy and I can do things, I’ll do it. Whereas if I’m having a bad day, I might not do anything but I’m not beating myself up about it. Whereas before, I beat myself up about [it] ...I kept thinking I would be as I was pre-stroke and accepting that I’m not, [I’m] being a bit kind to myself.” Stroke survivor S4

“If I had a bad day then a good day, then the next day I’d have a bad day it would take me a long time to pick myself back up and have another good day. And now, I think, oh it’s a bad day, well, we can have a little bad day, get on with it, it will pass and tomorrow will be a good day, so I just get on with it. So I do pick myself up quicker.” Stroke survivor S6

3.4.1.5.3 Acceptance

A number of participants within the group indicated an awareness that they had reached a point of acceptance regarding what had happened to them and how to “live with” the consequences of the stroke. Although the group was not focused upon encouraging people to reach a point of acceptance regarding their strokes, it appears that the contents of the sessions and hearing other people’s experiences may have enabled some participants to re-evaluate their experience and be more accepting of where they are at and what has happened to them. Furthermore, one participant reflected on how it has given her the encouragement to pursue an alternative vocation as a volunteer for a stroke specific charity.

“acceptance for me has been a big thing, it’s accepting what’s happened to you and learning how to deal with it and cope with it. So, the contents of the course and everything that we did has really helped me to accept what’s happened and to learn now how to live with what I’ve got.” Stroke survivor S5

“I turned from saying I’m not going to be dismissed, I’d never been dismissed from anything. I’ve turned that now into, ‘All right, I can’t do that job and I don’t want to pressure at that job and I can’t do the... it was all computer stuff. I can’t do it.’ So I’ve accepted that now and my way of coping with that is not to say, I’ll never work again but I’ll do some voluntary work or something for the Stroke Association.” Stroke survivor S4

“It’s not the same and it’s never going to be the same, but it’s actually how can you make sense, how can you find meaning of what you got now, yeah.” Stroke survivor S3

3.4.2 Summary of Qualitative Findings

In summary, the participants at the focus group indicated that they had enjoyed the group sessions and had each benefited from it through learning new skills and/or via interacting with other likeminded individuals who understood the challenges associated with having had a stroke. The following quote captures a number of the themes and subthemes identified via the thematic analysis, including: learning, camaraderie, loss, acceptance:

“I found the groups very informative, very friendly, quite funny at a lot of times, quite emotional as well. I’m quite an emotional person sometimes... And I find it quite sometimes hard to come to terms with what’s happened, but you have to. You can’t look back. Like you said, you got to go forward, be positive.” Carer S11

With regards to the course arrangements, the participants considered a number of practical aspects that are important to consider when developing interventions for this population group and can be used to inform future research studies. For example, participants reported that they would benefit from more sessions and longer sessions with allocated time for informal conversations with other group members and individual conversations with the facilitators. Participants also indicated the importance of the use of both audio and visual methods of teaching the course material to account for acquired cognitive difficulties (i.e. memory, reading).

The participants who attended the focus group reported having developed a number of skills that had enabled them to better cope with and to manage a range of difficulties they were experiencing, both physically and psychologically. They suggested that this shift in perspective and development of skills was achieved via a combination of the content of the sessions delivered and what they had learned from others within the group. Participants reflected on the importance of being understood and said that the group enabled them to experience this and to realise that they were not alone with their difficulties. Having a ‘mix’ of carers and stroke survivors at different stages of their post-stroke journey further contributed to this. Within the group, participants recognised both their own personal strengths and the strengths of the group as a whole, and this contributed to their sense of connectedness. Participants shared their experience of the ‘hidden’ impact of having had a stroke and collectively identified a number of gaps within the stroke care they received. There was also an emphasis on a lack of information regarding the psychological impact of stroke and how or where further support and/or resources could be sought. Such reflections have important implications for ongoing stroke care, they further highlight the need for psychological care to be a fundamental aspect of stroke survivors’ rehabilitation and for there to be a greater emphasis on continuing support for stroke survivors and carers within the community.

CHAPTER FOUR: DISCUSSION

4.1 OVERVIEW

Over the past 5-10 years there has been a surge in the development and use of Positive Psychotherapy [PP] interventions within both mental health and physical health populations. To date, there have been no published evaluations of the efficacy of this approach within stroke and thus, the primary aim of this thesis was to assess the feasibility of a group based PP intervention with stroke survivors and carers, and to evaluate the efficacy of this.

The main findings of the feasibility study (Study 1a) and the small *n* side study (Study 1b) will be discussed in this chapter. The key research questions were to determine whether an increase in psychological wellbeing occurred in stroke survivors and carers following attendance at a PP group. Secondly, to examine whether stroke survivors and carers reported a decrease in psychological distress following attendance at a PP group. Thirdly, to determine if there was a reciprocal relationship between psychological distress and psychological wellbeing, as tested using correlation analyses. Fourthly, to examine whether an increase in functional ability and multidimensional wellbeing occurs following attendance at a PP group. Finally, to use regression analysis to determine the predictive utility of weekly psychological wellbeing ratings, as measured using the SWEMWBS. Following the reporting of these findings, they will be appraised in relation to previous literature will be discussed. A critical review of both the strengths and limitations of each of the studies will be provided; consideration will also be given to the theoretical and clinical implications of these findings. Lastly the recommendations for future research within this area will be discussed.

4.2 SUMMARY OF QUANTITATIVE RESULTS

4.2.1 Feasibility Study (Study 1a)

4.2.1.1 *Non-significant findings*

Contrary to the hypotheses proposed, although in the direction hypothesised there were no significant changes in psychological wellbeing, psychological distress and multidimensional wellbeing reported across the phases and no significant differences identified between the intervention group and the control group. These findings indicate that the PP intervention group did not have a greater effect on stroke survivors' and carers' wellbeing (psychological and multidimensional) or psychological distress than those who did not receive the intervention.

There are a number of possible explanations for the absence of significant difference in reported wellbeing and psychological distress between the two groups. For example both groups scored fairly highly with regards to psychological wellbeing at the beginning on the study and therefore were unlikely to experience a significant increase in their psychological wellbeing. Furthermore, the mean HADS total scores at baseline were not indicative of clinically significant anxiety or depression amongst participants in either of the groups, and so, the likelihood of observing significant changes in psychological distress may have been reduced. However, when using the adjusted scoring criteria detailed in section 2.5.2, this indicates that 75% of the participants were experiencing clinically significant levels of anxiety and depression at baseline (Aben *et al.* 2002). Alternative explanations for the absence of a difference between the two groups may be due to limitations associated with the assessment measures used, the small sample size, the intervention itself not being acceptable and/or ineffective as further discussed in section 4.4.3.

4.2.1.2 *Significant findings*

As hypothesised, a significant negative relationship between psychological wellbeing and psychological distress was observed across both groups. This significant finding suggests that there may be a reciprocal relationship between psychological wellbeing and psychological distress, thus the beneficial effect of increased psychological wellbeing may in turn decrease an individual's experience of psychological distress. These findings are consistent with previous literature, as discussed further in section 4.4. As one might expect, there was also a significant positive association between multidimensional wellbeing and psychological wellbeing, it is likely that there is overlap in the underlying constructs measured. Secondly, significant differences in daily functional abilities, as measured using the FAI, were identified between the two groups over time. As hypothesised, the intervention group participants reported an increase in functional ability over time, whereas the

control group reported a decline in their functioning. These findings suggest that the PP intervention may have positively affected daily functioning ability. Furthermore, mean changes in daily functioning abilities were significantly positively correlated with psychological wellbeing. This finding suggests that a positive change in functional abilities may be associated with a positive change in psychological wellbeing and vice versa. Changes in daily functional abilities were negatively correlated with psychological distress, suggesting that there may be a reciprocal relationship between mood and functional ability; as functional ability increases psychological distress decreases. These findings have important implications for post-stroke rehabilitation, and will be discussed further in section 4.6.

4.2.1.3 Section Summary

The aim of a feasibility study is to identify whether or not the study can be done and to identify any potential limitations of the proposed design. Within the context of this study, the recruitment of participants was somewhat challenging; only 45% of those contacted (48/107) consented to participating in the study and a further 29% did not provide any data once consented (14/48). Overall, 42% of those who participated in the study provided a full data set (20/48). However, these issues may be overcome by recruiting from a larger population sample during the initial recruitment. Despite the recruitment difficulties encountered, although not formally measured participants did appear willing to be randomised to the control or the intervention group, only a small number of participants requested to be moved groups due to other commitments (holidays/hospital appointments), therefore some flexibility is required. As previously reported the response rates to the questionnaires was lower than anticipated, however this may be improved if all questionnaires are completed face-to-face rather than returned via the post, as in the case of the control group participants. However, this does place a significant demand on resources i.e. researchers time. An alternative method may be to use an internet/email based system, however, this may also have its limitations in that not all participants will have access to such technology. With regards to the feasibility of the intervention itself, qualitative feedback reported that the content of the sessions was relevant, easy to follow, and that the venue and its facilities met their needs. Additional feedback was provided regarding the structure of the session, as detailed in section 2.3.3.2.

Although the findings from this study do not support all of the hypotheses made, statistically significant findings may be demonstrated using a larger sample size, as discussed further in section 4.4.3. With the above recommendations taken in to consideration, the findings do indicate that the study may be feasible with community stroke survivors and carers. Limitations identified regarding the feasibility of the study include the high attrition rate observed, the lower than anticipated rate of

return of the questionnaires and session attendance. Possible explanations for this and ways to reduce attrition rate and enhance the quality of the feasibility study are reported in section 4.4.3.5. The findings do support the hypothesis that there is a significant negative relationship between psychological wellbeing and psychological distress, and that PP may be an effective intervention in enhancing stroke survivors' functional ability within the community setting. These findings will be considered in relation to the current findings within the relevant literature (see section 4.4). Furthermore, the theoretical and clinical implications of these findings will be discussed within section 4.6.

4.2.2 Small *n* Side Study (Study 1b)

4.2.2.1 Non-significant findings

Mean scores reported indicated positive changes in their wellbeing (psychological and multidimensional) and daily functioning, however although in the direction hypothesised, these improvements were not statistically significant. Furthermore, there was no significant reduction in psychological distress reported over time. These findings suggest that attending the PP group did not have a significant effect on stroke survivors' and carers' wellbeing (psychological and multidimensional) or psychological distress.

There are a number of possible explanations for these non-significant findings including the small sample size used, thus the analysis was under powered, the content of the intervention itself may not have been sufficient enough to engender positive changes, participants reported memory difficulties may have restricted their ability to engage in and learn the skills taught throughout the PP intervention, or due to limitation associated with the measures used, as discussed in section 4.4.2. For example, a number of the items within the HADS may have been misinterpreted or were confounded by residual physical symptoms of the participants' stroke, such as 'feeling slowed down' and 'restless'. Despite the non-significant findings, 64% of participants reported clinically significant levels of anxiety at baseline (using the adjusted scoring), this reduced to 57% at follow-up. The level of depression remained unchanged, 71% of participants reported clinically significant levels of depression (using the adjusted scoring) at baseline and follow-up. These findings indicate that further replication of the study is required with a larger sample size. Aside from the possible methodological limitations that may explain the non-significant findings, one must acknowledge that the intervention itself may be ineffective in enhancing psychological wellbeing, thus further exploration of the efficacy of PP is required.

4.2.2.2 *Significant findings*

As hypothesised, the regression of weeks and SWEMWBS produced a significant positive slope. There was a significant positive relationship between week and overall mean SWEMWBS scores; week (session number) was predictive of SWEMWBS score. Across the five weekly sessions participants reported an increase in their psychological wellbeing. This significant finding suggests that a group based PP intervention may positively improve community stroke survivors' and carers' psychological wellbeing. However, one must be cautious in interpreting this as no control group comparison was available and the findings may be explained by spontaneous recovery or post-traumatic growth.

A series of one-tailed bivariate Pearson's correlation coefficient (r) tests were conducted to examine any associations between the variables. As hypothesised, a significant negative relationship between psychological wellbeing and psychological distress was identified; as psychological wellbeing increased, psychological distress decreased. As previously mentioned, this finding is consistent with previous literature in that it indicates that there is a reciprocal relationship between psychological wellbeing and psychological distress. This has significant theoretical and clinical implications which will be discussed in section 4.6. Secondly, although not hypothesised but anticipated, a significant positive relationship between multidimensional wellbeing and psychological wellbeing was identified and a significant negative association between multidimensional wellbeing and psychological distress. These findings provide further support for the theorised reciprocal relationship between wellbeing and psychological distress. Thirdly, again although not hypothesised, a significant positive association between mean changes in daily functioning abilities and psychological wellbeing was reported. This suggests that as functional ability increases psychological wellbeing increases and vice versa. In addition, a significant negative association between daily functioning and psychological distress was identified, indicating that an increase in functional ability reduces psychological distress, and that, conversely, an increase in psychological distress has a negative impact on functional abilities. Further analysis of the FAI subscales indicated that leisure/work and/or outdoor based activities were the two domains that significantly correlated with psychological wellbeing and psychological distress. These findings suggest that as engagement in leisure, work and/or outdoor activities increases, psychological wellbeing increases, and that as functional ability within the domain of leisure/work and/or outdoor activities increases, psychological distress decreases. Such findings may have important implications for rehabilitation programmes developed for stroke survivors, and further highlight the need to consider the implications of psychological distress and psychological wellbeing for functional recovery.

4.2.2.3 Section Summary

The findings from this small *n* side study suggest that the PP intervention is a feasible intervention to deliver; the participants were interested and engaged. However, there were no significant changes in participants' psychological wellbeing, multidimensional wellbeing, psychological distress and daily functioning reported following attendance at the PP group. Such findings may be explained by the small sample size used and/or limitations associated with the measures used. Although no significant changes in psychological wellbeing and psychological distress were identified, further support of the negative relationship between these two variables was reported. Furthermore, a significant positive relationship between daily functioning abilities and psychological wellbeing was identified and a negative relationship between daily functioning and psychological distress. Further consideration of these findings in relation to previous research studies identified within the literature will be discussed in section 4.4. The clinical and theoretical implications of these findings will be discussed within section 4.6. Despite the non-significant changes in psychological wellbeing across the phases, a significant positive relationship between week and overall mean SWEMWBS scores was identified; week (session number) was predictive of SWEMWBS score. Each week participants reported an increase in their psychological wellbeing. This finding may suggest that the PP intervention may positively improve community stroke survivors' and carers' psychological wellbeing, however, one cannot exclude the possibility that this observed weekly increase in reported wellbeing was due to spontaneous recovery or post-traumatic growth, further exploration of this is recommended in future studies.

4.2.3 Summary of Qualitative Results

The focus group allowed the participants to share their experience of the PP group and to provide feedback on the suitability of the content, structure and format of the group sessions. Although this was the aim of the focus group, the discussions frequently returned to focusing on individuals' experiences of having a stroke and what this meant for them. The thematic analysis complements the quantitative findings of the study and provides further support for the benefits of a PP intervention following a stroke. This rich experiential information regarding both the intervention and individuals' experiences of having a stroke would not have been obtained via quantitative measures alone.

Five main themes were identified through thematic analysis of the qualitative data. The first theme was 'course arrangements', this involved discussions regarding the format of the sessions, the teaching methods used and the 'mix' of participants attending the sessions. The participants indicated that the intervention was too short and that they would have benefited from additional sessions. Furthermore, they reported that the sessions could be longer to allow more time for informal

conversations with other group members and more opportunities to speak to the facilitators. They also noted the importance of having both audio and visually supported teaching methods to support individuals with acquired cognitive impairments (e.g. memory, reading difficulties). Within the focus group there was a consensus of opinion regarding who ‘should’ attend the sessions, and all agreed it was beneficial to include stroke survivors at different stages in their recovery and to include carers in the sessions. The second theme identified was ‘learning’. This included skills learned via the sessions, knowledge obtained from other group members and the importance of adapting the content of interventions to stroke survivors’ needs. The third theme identified was the ‘hidden impact of stroke’, participants reflected on their experience of not feeling understood, the psychological difficulties following a stroke, acquired cognitive impairments and the gaps in care and information provided about these ‘hidden’ factors. The fourth theme was ‘connectedness’. Participants commented on their sense of feeling understood within the group sessions, that they were not alone and how they encouraged each other. This sense of connectedness appeared to be a key process underlying participants’ positive experience of the intervention. Participants also reflected on positive changes and growth they had observed in members of the group. This may be indicative of post-traumatic growth following attendance at the group sessions, and will be further explored within section 4.6. The final theme identified was ‘awareness’ within which participants talked about their sense of loss, their newly acquired perspective on life following their stroke and an acknowledgement of experiencing a sense of acceptance regarding their ‘new life’ post-stroke.

4.3 COMPARISON OF MAIN STUDY FINDINGS WITH PAST RESEARCH WITHIN POSITIVE PSYCHOTHERAPY

The following section compares the main findings from the feasibility study and the small *n* side study with findings from past research within this field. Of the eleven studies reviewed within the systematic review, five evaluated group-based PP interventions (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Hashemi & Raghabi, 2014, Howell *et al.* 2015; Larsen *et al.* 2015). Caution must be exercised when comparing the current studies with the identified articles due to the heterogeneity of the health conditions included within the literature, the range of outcome measures used and the diverse content within each of the interventions themselves.

To the author’s knowledge, the feasibility study (Study 1a) and the small *n* side study (Study 1b) are the first to have evaluated the use of PP with a stroke population. Only one other study identified within the literature has included stroke survivors within their sample alongside others with acquired

brain injuries (Cullen *et al.* 2016). However, this study examined the efficacy of individual PP interventions rather than a group intervention, as evaluated within this thesis.

The main quantitative findings identified within study 1a and study 1b, although in the direction hypothesised were not significant. These findings conflict with those of a number of other studies within the PP literature within which support for the use of PP interventions in physical health conditions is provided. For example, Cerezo *et al.*'s. (2014) study and Howell *et al.*'s. (2015) studies report an increase in wellbeing following attendance at a PP group.

Increases in positive emotions and engagement, as measured using the PERMA-P, were not observed in participants following attendance at the PP group. In contrast, increased positive emotions and engagement were reported in Van Haitsma *et al.*'s. (2015) study of the efficacy of individual PP interventions for people with dementia and Huffman *et al.*'s. (2015) evaluation of the efficacy of individual PP interventions within the cardiovascular population. A number of studies identified within the literature report a decrease in negative affect following a PP intervention (Huffman *et al.* 2015; Moskowitz *et al.* 2012; Cullen *et al.* 2016). Although hypothesised, no statistically significant decrease in psychological distress was observed in study 1a and study 1b. However, using the adjusted scoring criteria, there was a reduction in the number of participants reporting clinically significant levels of anxiety at follow up (Study 1b). Of note, the aforementioned studies evaluated the efficacy of individual PP interventions rather than group based interventions. Furthermore, the absence of a significant decrease in psychological distress may be a result of the limitations associated with the measure used (HADS) and limitations associated with the small samples used. While no significant decrease in psychological distress was reported in the current studies, a significant association between psychological wellbeing and psychological distress was identified. This finding provides further support for the theorised reciprocal relationship between psychological wellbeing and psychological distress, thus as psychological wellbeing increases psychological distress decreases (Frude, 2014). Although not examined in any of the other PP intervention studies reviewed, this finding has significant theoretical and clinical implications regarding the development of post-stroke interventions, as further discussed in section 4.6.

In Study 1a, significant improvements in functional ability were reported following attendance at the PP group. Furthermore, a significant positive association between functional ability and wellbeing was identified, providing further support of the notion that interventions designed to increase positive affect may have a significant impact on physical activity. Following attendance at a PP intervention individuals with asthma (Mancuso *et al.* 2012), coronary heart disease (Peterson *et al.* 2012) and hypertension (Ogedegbe *et al.* 2012) have reported increased physical activity.

The qualitative findings identified within study 1b provide further support for the efficacy of the PP intervention and are in line with those reported within Larsen *et al's* (2015) qualitative evaluation of a PP intervention for people experiencing chronic pain. Within both studies, themes and subthemes regarding connection, awareness, strengths and hope were identified. Feeling understood, less isolated and building relationships were also key subthemes identified as benefits of the PP group interventions in both studies. Such findings highlight the importance of social interactions and feeling understood, irrespective of the individuals' physical health condition.

Within psychological therapies research, the typical rate of 'dropout' is estimated to be between 20-47% (Swift & Greenberg, 2012). The rate observed within the feasibility study was significantly higher than this, an overall attrition rate of 58%. However, this is not surprising given the additional physical, psychological and social difficulties associated with stroke. Interestingly, the dropout rate was considerably lower within the small *n* side study, an overall rate of 30%. A possible explanation for these differences may be the time of year the groups were facilitated, and/or the presence of comorbidities within each of the two samples. The dropout rates observed within study 1a and study 1b are in line with those reported in other PP intervention studies, within which between 0-20% of the intervention group participants and 40% of the control group participants drop out (Boiler *et al.* 2013). The rates of dropout observed within study 1a and study 1b are higher than those observed in the studies identified within the systematic review. Given the high prevalence of comorbidities amongst stroke survivors, it is likely that physical, psychological, and/or social impairments may have contributed to the elevated drop out reported. Other possible explanations for these differences may include the setting in which the groups were conducted. For example, Andrewes *et al's.* (2014) study was conducted within an inpatient rehabilitation setting, whereas study 1a and 1b were conducted within a community setting that required participants to travel to the venue. Furthermore, participants had a number of outpatient appointments that interfered with their attendance at the group.

In summary, the quantitative findings from the current studies (Study 1a and study 1b) do not provide consistent support for the findings identified within the PP interventions in physical health literature regarding psychological wellbeing and psychological distress. As previously mentioned, this may be explained by the small samples used. Unfortunately, functional ability following attendance at the PP group intervention could not be compared to any previous studies as none explicitly examined this. Secondly, associations between psychological wellbeing and psychological distress were not examined within any of the literature reviewed; therefore no comparisons with prior research could be made. As previously reported, methodological differences regarding the populations examined, study design, levels of psychological distress of participants within the sample, sample size, outcome measures used, content of the intervention, duration of the intervention, method of delivery and skills of the group intervention facilitators may have contributed to the inconsistencies in findings reported.

Such heterogeneity between studies undoubtedly impacts on the quality and generalisability of the study findings and should be considered in future research studies.

4.4 METHODOLOGICAL STRENGTHS AND LIMITATIONS

4.4.1 Strengths

Despite the absence of significant improvements in participants psychological wellbeing following attendance at the PP group in study 1a and the lack of support for the hypothesised reduction in psychological distress following attendance at the PP groups (Study 1a and study 1b), a number of strengths have been identified in both studies that have both research and clinical implications.

4.4.1.1 Study Design

A major strength of the current studies is that they are the first to assess the feasibility of and efficacy of a group based PP intervention for stroke survivors and carers. Furthermore, an RCT design was employed within the feasibility study (Study 1a), participants were assigned to the intervention group or a control comparison group. One of the advantages of using an RCT is that the potential selection bias is reduced and the quality of the study enhanced. Of the ten articles reviewed in the systematic review, only three employed a RCT design (Cerezo *et al.* 2014; Van Haitsma *et al.* 2013; Cullen *et al.* 2016). Although largely non-significant, the findings reported in study 1a are in the direction hypothesised and can be used to form the foundations from which future research and the evidence base can be developed.

4.4.1.2 Inclusion of Stroke Carers and Stroke Survivors

As aforementioned in the systematic review, none of the ten studies reviewed included nor considered the impact of the chronic physical health conditions on carers. Chronic physical health conditions such as strokes can have a detrimental impact on spouses', relatives', and carers' psychological wellbeing. For example, a number of carers have reported experiencing depression (Han & Haley, 1999), anxiety and loneliness (Greenwood *et al.* 2009), suggesting that they too could benefit from a psychological intervention. This study is the first to include both the individual with the chronic health condition (stroke) and carers in a PP group together. As reported within the thematic analysis in section 3.4, participants indicated that they had benefited from having carers at the group and believe it is important to include them in such group based interventions.

The study samples were largely made up of stroke survivors (80%), however, there were four carers within the feasibility study (Study 1a); two in the control group and two in the intervention group. There were four carers within the small *n* side study, but, only two provided the full data set. Given the small number of carers within the studies, one cannot make generalisations about the benefits of the intervention for all stroke carers.

4.4.1.3 Data Collection and Measures

Another strength of this study is that, in addition to baseline and 5 weeks post baseline, follow-up data was also collected ten weeks post-baseline. This enabled the author to examine the longevity of the hypothesised benefits of the intervention. Furthermore, this study included measures of both positive and negative affect and psychological wellbeing, whereas a number of PP intervention studies reviewed only measured changes in positive affect (Andrewes et al. 2014; Hashemi & Raghini, 2014; Howell et al. 2015; Van Haitsma et al. 2015). It is important to include measures of both positive and negative affect when examining psychological wellbeing, particularly given its theorised reciprocal relationship with psychological distress (Frude, 2014, p.386).

4.4.1.4 Facilitators' Experience

A strength of the current studies is that one of the facilitators (author) had undertaken additional training in PP prior to facilitating the intervention group sessions. Furthermore, both facilitators were experienced in delivering group interventions with this population and were able to draw upon previous experience in managing challenges that arose. In contrast, the experience, profession and skills of the facilitators delivering the interventions in the previous studies reviewed was variable. For example, one intervention was facilitated by two counselling psychologists (Howell *et al.* 2015) whereas another intervention evaluated was delivered by a non-descript 'therapist' (Cerezo *et al.* 2014; Hashemi & Raghabi, 2014).

4.4.2 Limitations

The following identified limitations should be taken into consideration when interpreting the reported findings from the current studies, in particular with regards to the generalisability of the findings and the overall quality of the studies.

4.4.2.1 Study design

Although an RCT design was used for the feasibility study (Study 1a), this was not possible for the small *n* side study, and therefore a quasi-experimental design was employed. The main limitation of this design is that the participants were not randomly allocated to the intervention group, and this has implications for the statistical analyses conducted. Secondly, while follow-up data was collected in both studies, the elapse of time between the post data collection and the follow-up data collection may have not been long enough to determine the longevity of the benefits of the intervention. By comparison, other PP interventions studies reviewed conducted follow-up assessments at 20 weeks post intervention (Cullen *et al.* 2016). Secondly, although study 1a was a feasibility study, further steps could have been taken to enhance the quality of the assessment of the feasibility of the study including asking participants to rate the acceptability of the content of each of the five PP intervention sessions, telephone interviews with those participants who did not attend any sessions/did not provide any data/did not provide a complete data set/who attended less than three sessions. Further exploration of the barriers to attending the sessions and/or to the completion of the questionnaires may have greater informed the feasibility of the study.

4.4.2.2 Randomisation (Study 1a)

As previously mentioned, the participants within study 1a were randomly allocated to either the control group or the PP intervention group. Within healthcare research RCT's are considered the 'gold standard' for evaluating the effectiveness of interventions due to the minimization of selection bias. However, difficulties were encountered during the randomization process as four participants who had been assigned to the intervention group reported that they were no longer able to attend the group sessions commencing in the October, but were able to attend the second intervention group proposed to commence in the January. Similarly, four participants originally assigned to the control group were unable to attend the January intervention group due to planned holidays, but were able to attend the earlier group intervention due to commence in the October. Rather than exclude the participants from the study, the eight participants were re-allocated to the other group (control or intervention). The author acknowledges that this has an impact upon the internal validity of the study and the generalisability of the study findings. Further limitations associated with the randomization of participants to the two groups include the ethical concerns associated with delaying the access to an intervention that may be of benefit to the participants' psychological wellbeing (Shadish *et al.* 2008). However, this was deemed acceptable given that the participants were not currently accessing any community based psychological support and were therefore not being denied an intervention. Secondly, the efficacy of the PP intervention itself was not yet known. Thirdly the delay of waiting ten weeks to receive the intervention was unlikely to cause any psychological harm. Another

limitation of the randomization process within study 1a was that it was conducted by the author and supervisor, which may have introduced researcher bias. To reduce the possible researcher bias, the randomization process could have been conducted by an independent member of staff who was blinded to the participants and the two group conditions. Secondly, a computer software programme such as 'Research Randomizer' may have been a more robust method of allocating participants rather than the allocation "numbers in a box" method used.

4.4.2.3 *Small samples*

The *a priori* power calculation for the feasibility study (Study 1a) indicated that 48 participants were needed for 0.80 power to be detected using standard parameters of $\alpha=0.05$ for the proposed MANOVA. Due to the high attrition rate (58%) observed within the intervention and control group, it is likely that the statistical analysis conducted was underpowered and the likelihood of Type I and Type II errors increased. Regrettably, bootstrapping methods could not be used due to the mixed design of the study (within and between subjects). That said, Rosenthal and Gaito (1963) argue that if statistically significant findings have been reported there has been sufficient power to detect an effect. However, the overall findings from both studies should be interpreted with caution and the limitations regarding their generalisability considered.

4.4.2.4 *Control group comparisons*

A potential weakness of the small *n* side study (Study 1b) is the absence of a control group comparison, the participants acted as their own controls, thus a single-group repeated measures design was employed. Consequently, one cannot definitively conclude that the increases in psychological wellbeing, multidimensional wellbeing and functional abilities reported were the result of attending the PP intervention. Other confounding variables such as spontaneous recovery or increased social interactions may have also contributed to the reported changes. A second potential weakness associated with control groups is that the majority of the participants within the small *n* side study had originally been recruited and allocated to the control group within the feasibility study, therefore, a number of the participants had already completed the measures (questionnaire packs) three times prior to participating in the small *n* side study. The possibility of carryover effects must be considered, in that the participants may have become bored with completing the measures and experienced difficulty sustaining their attention when completing them. Thirdly, no alternative treatment comparison group or placebo 'attention' control groups were used within either of the current studies. One cannot exclude the possibility that the observed increases in wellbeing and functional activities were the result of having regular contact with mental health professionals and increased social interactions with likeminded others rather than the content of the intervention itself.

4.4.2.5 Attrition and Attendance

Within study 1a and 1b the attendance rates varied across the sessions, see Appendix P for an overview of the session attendance. Sixty percent (n=6) of the participants in study 1a attended all five sessions of the intervention. Similarly, 57 % (n=8) of participants within study 1b attended all five sessions. Unfortunately, data sets from participants who attended fewer than four sessions could not be included within the analyses as the impact of missing multiple sessions may have negatively impacted the overall findings in terms of their validity. Although more than half of participants in each study attended all five sessions, the potential implications of missing a session must be considered. Missing a session may have had a significant impact on the participants' abilities to generalise the skills learnt, limited their overall learning experience and understanding of the approach and limited their opportunities to practice the skills. There were a number of explanations for the fluctuation in attendance at the sessions such as illness, clashes with hospital appointments and last-minute family events and holidays. High attrition rates are likely within this population given the prevalence of co-morbidities and physical disabilities associated with stroke.

Feedback obtained from the study 1a participants identified the following factors as barriers to attending the sessions and/or reasons for their non-attendance at all of the sessions and/or incomplete data sets: transportation issues, low self-confidence- felt unable to attend on own, misunderstood that they were group sessions not individual sessions - felt uncomfortable sharing difficulties with others in a group format, illness, clashes with hospital appointments, and subsequently planned holidays/family events.

4.4.2.6 Intervention format and content

Limitations associated with the intervention itself include the number of sessions and the duration of each session. In comparison to previous studies evaluating the efficacy of group PP interventions, the number of sessions delivered in the current studies was considerably less. Despite the variation amongst the studies reviewed, all delivered more than five sessions (Andrewes *et al.* 2014; Cerezo *et al.* 2014; Hashemi & Raghabi, 2014; Howell *et al.* 2014). It is suggested that future research considers increasing the duration of the intervention beyond five sessions, this would allow for repetition and consolidation of learning and increased opportunities to practice the skills taught. Furthermore, the presence of residual cognitive impairments, such as short-term memory difficulties, may have further limited the participants' ability to retain and recall the information delivered in the sessions and their ability to practice the skills between sessions. As reported in section 3.4.1.1, the participants reported that the sessions were "*a little bit short*" and that they would have benefited from "*at least two more sessions*". Given their acquired cognitive impairments including memory difficulties, attention and concentration difficulties and fatigue, the participants may have benefited

from having longer sessions to enable them to ingest the content of the session, to engage in more group discussions and from being allowed more time at the end of the session for individual conversations with other group members or the facilitators. It's also possible that the content of the course was not ideal in terms of its power to enhance psychological wellbeing and reduce participants' reported psychological distress, thus the intervention itself may be ineffective and explain the non-significant findings. In order to further assess the efficacy of the intervention, future studies should include a control group comparison and a generic social support group.

4.4.2.7 *Generalisability of the findings*

The generalisability of the current study findings must be considered in relation to the potential limitations associated with the sample of participants included within the studies. It is unclear how representative the samples are of the general population of stroke survivors and carers.

Firstly, the samples were comprised of stroke survivors and carers, but, the samples were largely comprised of stroke survivors (80%) and so the beneficial findings reported in the studies, i.e. increase in psychological wellbeing, were predominately generated by stroke survivors. Thus, one cannot make generalisations about the benefits of the PP intervention for all stroke survivors and carers. It is unclear why so few carers participated in the studies, but there are a number of possible explanations for this. It may reflect a general perception that the stroke survivors' needs are paramount, a perception that they may inhibit their partners' engagement in the group sessions, carers may perceive themselves as not requiring any psychological support, or may have used the time as an opportunity for respite from their daily carer role.

Participants experiencing significant cognitive and/or language impairments were excluded from the studies, as a certain degree of cognitive and language functioning was required in order to engage in the intervention itself and to complete the chosen measures. Although the exclusion criteria supported the appropriateness of the measures used, the findings cannot be generalised to the sub population of stroke survivors with language and/or cognitive impairments who are also likely to be experiencing psychological difficulties. The presence of cognitive impairments post-stroke, in particular those affecting information processing, executive functioning and attention, are likely to produce and to maintain mood disturbances (Williams *et al.* 1997). Similarly, participants included within the study samples were not formally screened for any residual cognitive and/or language impairments, they were screened by the clinicians based on clinical judgement. Thus, it is possible that some participants may have been experiencing undisclosed cognitive impairments which may have impacted on their ability to engage in the intervention sessions and in turn limited the potential benefits of the intervention. Of note, more than half of the participants in study 1a (56%) and study 1b (62%)

identified themselves as having 'mild' memory difficulties, while a further 15%-23% reported that they had experienced 'severe' memory difficulties since their stroke.

Within the study samples there was variability regarding the type of stroke (ischaemic or haemorrhagic) and the location of strokes experienced by the participants. This heterogeneity may have implications for the generalisability of the findings to the general stroke population as left-hemisphere strokes have been identified as resulting in a greater prevalence of major depression (Astrom *et al.* 1993). Of note, the generalisability of the aforementioned research must be considered, as 79% of the sample included in Astrom *et al.*'s. (1993) longitudinal study experienced ischaemic strokes. This therefore limits the generalisability of the findings to those who have had a haemorrhagic stroke (Gandolfo & Contin, 2003).

The average age of the participants within the study samples was 63 years old (range 44-82); over half of the participants in study 1a (56%) and study 1b (67%) were classified as 'young-adult' stroke survivors. Given that strokes are traditionally perceived as an 'older-adult illness', the generalisability of these findings to the general 'older' population of stroke survivors must be considered. Although the PP intervention may benefit any aged stroke survivor and/or carer, the content of the sessions may need to be further adapted to make it relevant to the participants' needs and current life-stage. That said, 25% of the participants within study 1b were aged 80 years or over and reported beneficial outcomes following attendance at the intervention group sessions. Furthermore, the majority of participants within study 1a and study 1b were retired either due to their age or retired early due to their stroke. Further research is recommended to examine the efficacy of the intervention with a younger stroke population, perhaps those with young families and/or who were not nearing retirement at the time of their stroke.

The length of time since their stroke may have affected the generalisability of the findings, for example within both studies the mean time since the stroke was 20 months, however, there was a diverse range of recovery times within the samples from 1 month to 61 months. Such heterogeneity may have implications for the reported efficacy of the intervention for the population of stroke survivors within the community. For some, the timing of the intervention may have been too early in their recovery for them to have gauged the impact of their stroke and to consider the implications of it on their future, whereas this may have been more accessible for the participants who were 60 months post-stroke, for example. Secondly, the peak prevalence of psychological distress is reportedly at 6-24 months post-stroke (Turner-Stokes & Hassan, 2002), therefore the samples within the current studies may not have been representative of the prevalence of psychological difficulties amongst stroke survivors within the community.

The majority of the participants within the study samples identified themselves as White-British, only one participant identified themselves as from an ethnic minority group (Black-Caribbean), this presents limitations regarding the generalisability of the findings to the wider stroke population. There is a known higher risk of stroke in the Asian and Black population (Go *et al.* 2014), however, these ethnic groups were not represented within the current studies. It is possible that the absence of ethnic diversity within the samples is representative of the local area, conversely, this may highlight the need for further work to be conducted in supporting ethnic minority groups to access community physical and mental health services.

Thirty percent of the participants in study 1a and 24% of the participants in study 1b had accessed treatment for their psychological difficulties prior to engaging in the research studies. Treatments included pharmacological treatment and talking therapies. The impact of prior treatment upon the study findings is unknown, and one must therefore be cautious in assuming that the increase in wellbeing reported is solely a direct benefit of the intervention. Secondly, the role of other clinical interventions alongside the intervention were not accounted for. These included ongoing private physiotherapy, attendance at a weekly Stroke Association group in which Physiotherapy and SALT input was provided, community exercise programmes, and volunteer roles within the local Stroke Association. It is possible that attendance at these other clinical interventions may have contributed to the observed significant increases in psychological wellbeing, multidimensional wellbeing and functional ability, as reported in study 1b.

4.4.2.8 Measures

Self-report measures are a practical and cost effective method of collecting data and are better able to measure constructs such as beliefs, attitudes and mood than other methods. However, there are a number of limitations associated with this method of data collection, some of which are specific to the population or the samples used. Firstly, residual post-stroke cognitive or communication difficulties may have impacted on individuals' ability to complete the self-report questionnaire packs issued. For example, self-report measures typically require the ability to access short term memories, which may have been more difficult for some of the participants who identified themselves as having 'mild' memory difficulties. Secondly, a degree of insight is required in order to engage with some of the items in the measures. In particular in the SWEMWBS, some participants may have had difficulty accessing items due to residual cognitive difficulties or fatigue (Gangstad *et al.* 2009)

Within study 1a and study 1b all participants were offered additional support to complete the questionnaires (in person or via a telephone conversation), only one participant requested this

additional support, however, some carers supported their partners to complete the questionnaire packs. A potential limitation of not completing the questionnaires independently is that participants responses may have been influenced by social desirability or demand characteristics, i.e. participants may have felt the need to report that their abilities, mood and/or wellbeing were 'better' than they actually were, or they may have felt that a positive improvement was expected and therefore inflated their responses. This limitation may not be unique to those who completed the questionnaires with assistance; it may also have been true for participants who completed their questionnaire packs independently. It is common for individuals to inflate their abilities or to have an inaccurate perception of their abilities after a stroke (Resnick *et al.* 2008).

There are many opinions regarding the 'best' and most appropriate self-report measure of wellbeing, mood and functional abilities to be used with post-acute stroke survivors, each with their own argument (Salter *et al.* 2013). Although these were taken in to consideration, the rationale for the choice of measures included within this study was based on how well they captured clinical factors specific to stroke and the research question regarding wellbeing, but, also with consideration for the length of each measure and how easily it could be administered. The limitations of each of the chosen measures are highlighted in the following paragraphs.

The short-form WEMWBS was selected on the basis that it was short, easy to administer and had robust measurement properties. However, a main limitation of this measure is that it focuses on aspects of eudaimonic wellbeing such as psychological functioning, positive relationships with others and self-realisation, rather than on hedonic wellbeing. Furthermore, the seven items relate more to wellbeing functioning rather than to a 'feeling', which may result in a restricted view of psychological wellbeing. Given that wellbeing is a universal concept, the SWEMWBS has not been validated within the stroke population, and therefore, one cannot be confident that items such as "I have been thinking clearly" and "I have been able to make up my own mind" are not misinterpreted by the participants or compounded by the presence of possible residual cognitive impairments (Deary, 2012).

The PERMA-P measure was chosen as it captures and 'dashboards' the key aspects of the PERMA model of wellbeing which underpins the content of the positive psychotherapy intervention delivered within this study. The 'dashboard' approach highlights the strengths and weaknesses rather than averaged component scores and can be used to inform targeted interventions for the individual. A main limitation of this measure is that scale norms or psychometric properties of the measure have not yet been formally published. Secondly this measure has not been widely tested by researchers other than those who developed it. Finally, as with the SWEMWBS, this measure has not been validated within the stroke population, and items such as the following may tap in to stroke related variables rather than general wellbeing; "In general, how would you say your health is?", "To what extent do

you receive help and support from others when you need it?”, “In general, how often do you feel anxious?”, “How satisfied are you with your current physical health?”, “How often are you able to handle your responsibilities?”, “Compared to others of your same age and sex, how is your health?”. Furthermore, this measure contained the greatest number of items, some of which had two parts to them and/or were lengthy items, which places a high demand on an individuals’ cognitive processes. Residual cognitive impairment and fatigue may have impacted on the participants’ responses to items on the measure. Of all the measures used, the participants reported that they found this measure the most challenging to complete.

With regards to the HADS, although it was designed not to relate to symptoms of physical illness, a number of items on the depression scale have been identified as potentially problematic when used within a physical health population. For example, item eight, “I feel as if I am slowed down” may be interpreted as a physical symptom, this may be particularly true of older adults who may have experienced a sense of feeling “slowed down” as a result of their age, and/or physical ailments including those associated with a stroke. The validation studies of the HADS within the stroke population themselves have a number of methodological limitations, for example participants were recruited between two weeks and six months post-stroke, whereas it is recommended within stroke guidelines that stroke survivors’ level of psychological distress is screened beyond the first six months (Turner *et al.* 2012). This poses additional limitations for this study as a number of participants within the samples used were less than six months post-stroke. Further limitations of the validation studies include, small sample sizes and no formal assessment of cognitive and functional status of those included within the sample. As previously mentioned, it has been proposed that the cut-off score ranges for anxiety and depression caseness should be reduced when using the HADS with the stroke population, however, according to Johnson *et al.* (1995) lowering of the cut-off scores to 5+ for HADS-A and 4+ for HADS-D resulted in significantly lower specificity for both anxiety and depression (0.38 and 0.44, respectively) than in studies of other clinical samples. Conversely, a more recent validation study of the HADS-A scale in the stroke population identified that an optimal cut-off score of 4 or 5 is sensitive (0.8) and has a specificity rating of 0.6 (Bennett & Lincoln, 2006; Sagen *et al.* 2009).

In consideration of the use of the FAI, this measure was originally developed and recommended to be used beyond the sub-acute phase of stroke, unlike the Barthel Index (BI) which is recommended in the sub-acute phase (Pedersen *et al.* 1997; Schepers *et al.* 2006). One potential limitation of the use of this measure within this study is that a small number of the participants within the samples were only one-month post-stroke, which may be regarded as the sub-acute phase, therefore, the external validity of some of the scores reported may be limited. Secondly, the FAI was developed originally for individuals aged 65 or older, whereas, the participants within the samples ranged from age 44-82

years old. The FAI is a multidimensional measure that consists of three factors: domestic, work/leisure and outdoors. Within the literature it has been proposed that gender differences should be taken into account when examining the FAI scores as there is evidence of a gender bias in FAI scores (Holbrook & Skilbeck 1983). For example, men have been reported to have significantly higher scores in outdoor activities whilst there was a trend for females to have higher domestic activity scores (Sveen *et al.* 1999). Age has been identified as being significantly negatively associated with FAI scores one year post-stroke, younger stroke survivors demonstrate higher FAI scores than the older adult stroke survivors (Appelros, 2009). Therefore, one must consider the possible impact of age on the findings as the majority of participants were under 65 years old. Furthermore, “gainful work” may be less relevant for the older participants who may be retired. Significant differences in reported engagement in hobbies, and car/bus travel have been identified between individuals who have had their stroke more than 12 months ago when compared to those who had their stroke less than 12 months ago (Lin *et al.* 2012). A further limitation of the FAI is that a number of the participants no longer worked due to retirement or as a consequence of their stroke, however, they did engage in voluntary work roles which are not recognised as an activity within this measure. The impact of the season/weather on ability to do outdoor activities is not taken into consideration, for example both studies were run in the winter months, study 1b began in January and ended in March, during this time the weather fluctuated and may have had a confounding impact of the FAI overall outdoor scale scores reported. As previously mentioned, some participants within the sample received additional support in completing the measures, and it has been reported that participants completing the measure themselves tend to score themselves as doing the activities more frequently than proxy respondents report they do, in particular with regards to domestic chores and social outings (Tooth *et al.* 2003). In contrast to other measures of activities of daily functioning such as the BI which typically demonstrate ceiling effects, a floor effect has been identified with the FAI. For example, 19% of the respondents score the minimum zero value (Sarker *et al.* 2012).

A further limitation regarding the measures included within this study is that no carer specific measures were used. This should be considered within future research studies. Examples of carer specific measures that could be used in future research include the Adult Carer Quality of Life Questionnaire (Elwick *et al.* 2010) and the Carer’s experience survey.

4.4.2.9 Quantitative Data Analysis

The limitations associated with the choice of tests used in the data analysis of each of the two current studies may have impacted upon the findings and their generalisability to the wider stroke population and PP intervention literature. For example, despite the data in both studies being non-normally distributed, it was decided that parametric tests would be used. The rationale for this choice in

analysis was that parametric tests are reported to be robust against non-normally distributed data within small equal sized samples (Khan & Rayner, 2003; McDonald, 2014). Furthermore, parametric tests were preferred over non-parametric given their assumed greater statistical power. To compensate for the non-normally distributed data, outliers identified within each dataset were adjusted to reduce their disproportionate impact on the data. There are of course limitations associated with the adjustment of outliers in that one may negate genuine extreme responses generated by the participants and may increase the risk of data errors. Had it been feasible, the author would have used a bootstrapping method across all of the statistical tests conducted to maintain power and reduce the likelihood of Type I and II errors within the study 1a analyses. However, it was not possible to use the bootstrapping method as this function is not available within SPSS for mixed method designs. Given the a priori power analysis reported in section 2.2.1.1, the author acknowledges that analyses in study 1a are somewhat under powered and that it is possible that the findings reported are the result of Type I or Type II errors. It is hypothesised that a larger sample size may have resulted in more significant findings, i.e. a significant increase in psychological wellbeing and a decrease in psychological distress following attendance at the PP group intervention.

4.4.2.10 *Qualitative Data Analysis*

Within the literature on the use of PP interventions within physical health conditions, very few studies have explored participants' experiences of attending a PP intervention. Only one such relevant study was identified (Larsen *et al.* 2015). Having conducted a focus group exploring participants' experiences of attending the PP intervention group, there is much to be learnt from conducting qualitative research and from listening to participants' experiences. Furthermore, this information can be used to inform future research and development of interventions (Silverstein & Auerbach, 2009). Although rich information was obtained from the focus group conducted, there are a number of limitations associated with the analysis method used which in turn affects the generalisability of these findings to the wider stroke population. Firstly, as with all qualitative analyses, the findings reported are subjective and may not be representative of the wider stroke population. This limitation is further exacerbated within this current study (Study 1b) as not all participants who attended the intervention group sessions attended the follow-up focus group, thus the data obtained may be biased and not representative of the whole sample's experience. For example, the participants who attended the focus group were all highly motivated individuals and each attended four or more of the five intervention sessions. Secondly, the focus group was comprised of both carers and survivors, although participants reported that this was beneficial to have a mix of participants, this may have influenced what participants felt able to discuss during the group sessions and the focus group, for example they may have been concerned about 'upsetting' their carers/partners and or vice versa. Thirdly, there are limitations associated with the choice of analysis used, thematic analysis, which may have also

affected the findings reported. This method of analysis has been praised for its flexibility and the many ways in which it can be conducted. However, with this comes the associated disadvantage that this may increase subjectivity and researcher bias (Antaki *et al.* 2002). Furthermore, given the researcher's investment in the study they may have unconsciously paid greater attention to the positive experiences reported during the focus group rather than the less positive aspects reported. However, within this current study Braun and Clarke's (2006) proposed framework was followed and the transcript and proposed themes were peer reviewed to increase the validity and reliability of the findings reported. Fourthly, the focus group was facilitated by the facilitators of the PP group. Whilst this may have put the participants at ease and enabled them to speak openly and honestly about their experiences as they had developed a trusting therapeutic relationships, it may have impeded participants' ability to critique the intervention for fear that this would be taken as a personal criticism by the facilitators. This potential limitation was raised at the start of the focus group and throughout the discussions held. The facilitators encouraged the participants to be as honest as possible in their feedback and reassured them that their comments would not be taken as a personal criticism of the facilitators. The potential impact of this is worth considering in future research studies conducted. Finally, the structure of the focus group was based upon a semi-structured interview schedule (Appendix R), although this did attempt to explore the limitations of the group sessions, it did largely focus on the positive aspects of the group and what the participants had gained from them, and thus participants' feedback may have been unintentionally skewed towards providing positive feedback.

4.5 STUDY IMPLICATIONS

4.5.1 Theoretical Implications

The following section will review the theoretical implications of the findings reported in the current studies. As detailed in chapter one, practising PP skills, such as those taught to participants in the current study intervention, has been evidenced to improve individuals' psychological wellbeing (Seligman & Csikszentmihalyi, 2000). Similar findings providing further support of the benefits of practising PP skills has been reported within the chronic physical health literature. For example, following attendance at a group based PP intervention, increases in psychological wellbeing were reported in a sample of individuals experiencing chronic pain (Howells *et al.* 2015) and women with breast cancer (Cerezo *et al.* 2014). Participants in study 1a and study 1b reported an increase in their psychological wellbeing, but these changes were not significant therefore support of these previous studies cannot be provided without further replication of the current studies.

As anticipated, there was a positive association between multidimensional wellbeing (positive emotions, engagement, relationships, meaning and accomplishments) and psychological wellbeing identified within both studies. This finding, although not formally hypothesised, provides support for Fredrickson's Broaden-and-Build theory [BBT], within which she proposed that positive emotions contribute to an individual's wellbeing and functioning (Fredrickson, 2004). Furthermore, the theory proposes that the experience of positive emotions, even if brief, can broaden people's cognitions, attention and behaviours (thought-action repertoire), which in turn can build their personal resources and foster optimal functioning. For example, the experience of joy can encourage an individual to play, be creative and/or push the limits and engage more in hobbies or other activities.

Psychological wellbeing has been identified as playing a vital role in maintaining physical health, promoting quality of life and enhancing functional outcomes following a stroke (Turner-Stokes & Hassan, 2002; Stewart & Yuen, 2011). It is hypothesised by the author that the aforementioned BBT may underpin such findings (Fredrickson, 2004). Within study 1a, improvements in functional ability were reported by participants after attending the weekly PP intervention. These increases in functional ability were also positively associated with increases in psychological wellbeing. Such findings provide further support for previous literature within which psychological wellbeing has been reported to be highly correlated with level of functional recovery post stroke (Broomfield *et al.* 2011; de Weerd *et al.* 2011; Young & Foster, 2007). These findings suggest that positive psychological factors play an important role in post-stroke recovery and have significant implications for the development of post-stroke rehabilitation programmes. A significant negative association between functional ability and psychological distress was identified in both studies (Study 1a and study1b), suggesting that as functional ability increases psychological distress decreases and vice versa. This is in line with Lincoln *et al's*, (2013) research suggesting that the presence of post-stroke psychological difficulties such as depression are predictive of poorer physical functioning up to a year later (Lincoln *et al.* 2013). Again, this has significant clinical implications, indicating that psychological difficulties should be identified and 'treated' to enhance the individuals' psychological and physical functioning post stroke.

Practising PP skills, such as those taught to participants in the current study intervention, has been evidenced to improve individuals' physical health outcomes (Stewart & Yuen, 2011), Although no formal measure of physical health was conducted, it would have been interesting to examine the physical benefits, if any, of the PP intervention. Having a sense of purpose and meaning in life has been reported to be protective factor for myocardial infarctions for people with heart disease (Peterson, 2006). Furthermore, there is growing evidence for the role of personal strengths (e.g. self-efficacy, coping, resilience) on QoL for individuals with a range of physical health conditions including Parkinson's disease (Robottom *et al.* 2012), traumatic brain injury (deRoos-Cassini *et al.*

2010; McCauley *et al.* 2013) severe multiple trauma, and transplant patients (Tallman *et al.* 2010). This is a possible aspect worth considering in future research conducted within this field.

Within the literature it has been proposed that there is a reciprocal relationship between psychological wellbeing and psychological distress (Frude, 2014). Thus, by increasing an individual's sense of psychological wellbeing, as was the aim of the PP intervention, their level of psychological distress will inadvertently be reduced (Frude, 2014). Although no significant decrease in psychological distress was reported in either of the current studies, a trend in the hypothesised direction was observed. Despite this, a significant negative association between participants' psychological wellbeing and psychological distress was reported in both studies. Such findings provide further support of the reciprocal relationship between psychological wellbeing and psychological distress and have important implications for the development of psychological interventions. For example, most traditional approach psychological interventions aim to directly reduce psychological distress, whereas PP interventions do not attempt to directly reduce psychological distress. Instead, the approach aims to increase wellbeing, which in turn will alleviate and/or reduce psychological distress.

Although not formally measured, participants attending the focus group emphasised the importance of social support received at the PP intervention, for example participants reported that they felt "understood", "not alone" and that they had "learned from others". Therefore, consideration regarding the benefits of social support on wellbeing and the possibility that the findings reported are an effect of increased social support rather than the content of the intervention itself must be considered. A recent study conducted evaluating the efficacy of peer support within stroke survivors and carers indicated that social support may play an important role in enhancing wellbeing, specifically peer support (Stamatakis, 2015). Within the physical health context peer support can be defined as support provided via a social network or an individual who has experiential knowledge of a specific health related issue (Paul *et al.*, 2007). Through the sharing of similar life-experiences peer support groups can create reciprocal non-hierarchical relationships (Malchodi *et al.* 2003), which are unlikely to be provided by health professionals (Hoey *et al.* 2008). Furthermore, peer support can provide informational, emotional and affirmational support which can facilitate a sense of connectedness, identification with others, shared experiences, shared understanding and effective role-modelling (Dennis, 2003). Encouragingly, the use of peer support has been included national guidelines for long-term physical health conditions including stroke (Intercollegiate Stroke Working Party, 2012) and within adult mental health clinical guidelines (Mental Health Foundation, 2012a; NICE, 2011).

Further support for the positive association between social support and wellbeing for both the individual with the physical health condition and carers has been identified within the literature (Cohen *et al.* 2006). Furthermore, social support has been identified as having a positive effect on physiological functioning (Uchino, 2006) and in decreasing psychological distress, namely depression (Huang *et al.* 2010; Stamatakis, 2015). Such findings are of theoretical importance and have significant clinical implications regarding post-stroke care, in particular ensuring that stroke survivors receive on-going social support and inclusion within the community. The inclusion of a measure of therapeutic processes such as the Therapeutic Factors Inventory-19 ([TFI-19] MacNair-Semands *et al.*, 2010) may help to identify the ‘active ingredient’ in enabling change/improvement of psychological wellbeing. There are a number of models of social support that may help to explain why social support can positively affect physical and psychological health outcomes for stroke survivors and carers (Cohen *et al.* 2000; Dennis, 2003). For example, according to social comparison theory, individuals make comparisons regarding the opinions and abilities of others to create a sense of normality and to seek information to benefit their wellbeing (Carmack Taylor *et al.* 2007; Festinger, 1954). Social comparisons may be particularly relevant to those with chronic health conditions, given the associated uncertainty and anxiety about health and the future associated with chronic health conditions comparisons to others may be beneficial (Dibb & Yardley, 2006; Stiegelis *et al.* 2004). For example, individuals may learn adaptive coping strategies through observing others who have had a similar experience to theirs and/or learn what not to do (Proudfoot *et al.*, 2012).

A number of participants at the focus group reported a sense of “connectedness”, “learning from others”, “hope” and “not alone”, such feedback highlights the potential that the therapeutic benefits of being in a group may account for the improved psychological wellbeing and physical functioning reported by participants following attendance at the sessions. Within the literature there are a number of theorists that examine the therapeutic benefits of group psychotherapy, the most widely known is Yalom’s proposed therapeutic factors of group psychotherapy in which he defined these as “the actual mechanisms of effecting change in the patient” (Yalom, 1975, as cited in Yalom & Leszcz, 2005). Yalom (1975) identified eleven factors that he believed influence the process of change and recovery amongst group therapy clients: catharsis, empowerment/personal growth, social learning, universality, interpersonal learning, altruism, guidance/information, self-understanding, vicarious learning/imitation, instillation of hope and acceptance/cohesiveness (Yalom, 1975, as cited in Yalom & Leszcz, 2005). All of which were factors participants reflected upon throughout the focus group session.

Within the focus group a number of participants intimated that they had experienced post-traumatic growth [PTG] or had observed this in other group members. Although no participants formally

identified this experience as PTG, the following transcript extracts highlight a sense of psychological growth: *'I've seen improvements in members of the group. Without naming names... but B I'm thinking of. And she...all she wanted to do was to take her grandchildren on the bus and she's been able to do it.'* (Stroke Survivor S7); *'...it's going outside and it might be a cloudy day, but look at what else is there. Its springtime and I love daffodils and seeing all the daffodils there. And now, I can look at the clouds and think, oh, look at the shape of that. So, it's only because of things that you said and I think, oh yeah, you know? All right, it's a miserable day, but what else can I see? Reframing things and looking for the positive has really helped me.'* (Stroke Survivor S3).

Although still in its infancy, there is emerging evidence within the stroke literature highlighting the evidence of PTG occurring amongst stroke survivors (Gangstad *et al.* 2009) and carers (Hallam & Morris, 2014) following the trauma of their stroke. In line with the aforementioned importance of social support, Tedeschi and Calhoun propose that this is an important factor in promoting PTG (Tedeschi & Calhoun, 2004). Given that no formal measure of PTG or social support were used within either of the studies one cannot determine the mediator role of either of these with regards to increases in psychological wellbeing. Within the literature there are inconsistencies regarding the association between wellbeing and PTG, for example one study reported a positive association between the two concepts (Carver & Antoni, 2004), whereas other studies have reported no association (Park & Helgeson, 2006). Thus, further research is required to determine the relationship, if any, between PTG and wellbeing.

Although the focus of the intervention was around increasing psychological wellbeing, participants at the focus group reflected on their awareness of having accepted the impact of the stroke on their life since attending the group, as captured in the following quotes: *'It's not the same and it's never going to be the same, but it's actually how can you make sense, how can you find meaning of what you got now, yeah.'* (Stroke Survivor S3); *'...acceptance for me has been a big thing, it's accepting what's happened to you and learning how to deal with it and cope with it. So, the contents of the course and everything that we did has really helped me to accept what's happened and to learn now how to live with what I've got.'* (Stroke Survivor S5)

The concept of acceptance was not formally measured within either of the studies, therefore one cannot reliably determine the potential mediator role of this in increasing participants' psychological wellbeing. However, Ryff and Keyes (1995) argue that positive evaluations of oneself and one's past life (Self-Acceptance) is one of the fundamental dimensions of psychological wellbeing. Thus, it is possible that the development of a sense of acceptance may have contributed to participants' increase in psychological wellbeing. Furthermore, although the first of its kind, a recent research study examining the efficacy of an acceptance based psychological intervention (Acceptance and

Commitment Therapy [ACT]) within the stroke population reported significant psychological benefits, namely a decrease in psychological distress (Ivey, 2015). This significant finding indicates that acceptance may also have an important mediator role in psychological distress. Within the wider physical health literature, ACT interventions have been reported to enable individuals to more effectively manage their long term conditions (Feros *et al.* 2013; Hadlandsmyth, *et al.* 2013; Lundgren *et al.* 2008).

4.5.2 Clinical and Service Implications

The quantitative and qualitative findings reported in the current study suggest that PP interventions are feasible and may be clinically relevant. Further research is required to determine the efficacy of intervention for increasing stroke survivors' and carers' wellbeing (psychological and multidimensional) and functional abilities. The implications of the study findings for service-users, clinicians, rehabilitation programmes and in informing future policies and guidelines are considered in the following paragraphs.

As detailed within the introduction chapter, national guidelines and frameworks (National Institute for Health and Clinical Excellence [NICE], 2008; National Stroke Strategy, DoH, 2007; Royal College of Physicians, 2012; Welsh Government, 2012) acknowledge the prevalence of psychological difficulties post stroke and emphasise the importance of the inclusion of routine psychological services within post-stroke care. The NHS improvement plans for psychological care in stroke, provides further support for this, suggesting that psychological care should be routinely provided and should be considered as an integral part of individuals' recovery by all members of the multi-disciplinary team (NHS, 2011). The provision of psychological support for stroke survivors within the community has been identified as inadequate, with Wales being rated as the poorest of all the nations. Such findings have encouraged a focus on the importance of developing the standards of community stroke care across the UK (NICE, 2010; WG, 2012). Through conducting the research, speaking to community stroke survivors and carers and through attending a third sector led stroke group, the lack of services available for community stroke survivors and carers (locally and nationally) and the dearth of information regarding the 'hidden' aspects of a stroke, i.e. the psychological impact, and the support options available was apparent. This identified 'gap in care' was identified as a core theme of the focus group that was conducted. Participants reported that they found it difficult to access information regarding the psychological impact of having a stroke and were unsure where they could go to access support with this, as captured in the following quote: *'...there's so many books and information available for people who have the physical effects of a stroke. But I found it very difficult to get information and help on the psychological effects of a stroke.'* (Stroke Survivor S5).

A number of the focus group participants sought independent support for their psychological difficulties prior to attending the PP group. All reported that they had not found them helpful as they were not relevant to their ‘stroke induced’ psychological needs. This suggests that psychological support provided following a stroke needs to be relevant to the stroke. Further support of this is provided in the following quotes: *‘I went on a course for managing depression as there was nothing else, but that wasn’t really what I wanted because the people who were there on that course...And I was there for a different reason. I was...things affected me because of my stroke. So to find that there is...there are groups and there are people that can help with the psychological thing, to me, made a big difference.’* (Stroke Survivor S4); *‘...although MIND offer courses, they’re not relevant. I didn’t find it was relevant to me having had a stroke. Because there were people there who self-harmed and they’ve been...had mental illness for a long, long time. And I didn’t...I don’t want to sound snobby, but I didn’t fit in to that group and I didn’t get much from it...’* (Stroke Survivor S2). Such findings suggest that a generic intervention for depression, i.e. those delivered within primary mental health, may not be effective in reducing the stroke survivors’ psychological distress. This finding has significant implications for the already limited access to psychological care within the stroke community. However, the delivery of group based interventions such as PP may be a cost-effective way of increasing access to relevant psychological care. Furthermore, with supervision from a psychologist, other members of the multi-disciplinary team could be trained to deliver or co-facilitate the PP intervention. In turn, this will enable clinical psychologists to undertake other aspects of their role within a stroke service such as providing supervision to other professionals, offering consultations, delivering training, conducting research, working with other agencies and leading service developments, all of which are core competencies of the profession (BPS, 2008; Division of Clinical Psychology [DCP], 2010; Health and Care Professions Council [HCPC], 2012).

As detailed within the previous section, the findings from the studies suggest that an improvement in functional ability was reported following attendance at the PP group. Furthermore, a positive relationship was identified between psychological wellbeing and functional ability. These findings have important implications for the development of rehabilitation programmes, highlighting the fact that other disciplines, i.e. physiotherapists and occupational therapists, need to consider the role of psychological wellbeing on an individual’s physical and functional recovery and how they can incorporate this into the individual’s rehabilitation programme.

In facilitating a community based psychological intervention there are a number of practical arrangements to be considered which may have implications for the service. For example, where the intervention is facilitated and how easily the participants can access the venue is an important consideration given the high prevalence of mobility difficulties amongst stroke survivors. With

regards to the venue, participants attending the focus group raised concerns about a group being delivered in a public setting such as a community centre, village hall or supermarket based community meeting room as some may find such environments overwhelming as suggested in the following quote: *'...they could never come to a meeting in the supermarket because they can't cope with going into a supermarket scenario...'* (Stroke Survivor S8). In contrast, one participant emphasised the importance of the group being facilitated within the community, outside of the hospital setting, as they did not want to be reminded of their traumatic experience associated with the hospital. The interventions described in the current studies were facilitated in an outpatient environment (day hospital), although the venue itself was identified as being sufficient, participants attending the focus group raised a number of difficulties associated with transport to and from the venue and difficulty parking close to the venue. The hospital ambulance transport service provided was particularly problematic for two participants attending the intervention group, as captured in the following quotes: *'...There is no negative about the group apart from the transport which is not your fault.'*; *'...I understand that I'm not the only one relying on NHS transport but you got to be ready for them then they don't turn up...I understand I'm not the only one but it is so frustrating. Because if I know I'm going somewhere, I'm going to be picked up at 9:00, I don't want them to be there 9:55. I got to be there by 10:00 and I don't like...before this happened, I didn't like being late anyway. So if I got a train for 9:00, I'd be on the station 8:30 to make sure I'm there for that train.'*; *'That doesn't encourage people to come along to the group, does it? If you're...you know. It makes you think, well I'm not going... Again, the same thing, to get...to be...the group starts at 10:00, I'm being picked up or being told to be ready by 9:00 so I'm getting up at 7:00 to have a shower and get myself breakfast. So I've made that effort to get up at 7:00 to do and then the transport doesn't turn up. And then when it does turn up, it's obviously late. And then I get, all right touch wood I was never late to say, but then I'm waiting two hours so this two-hour group that we're having, for me, could become a six-hour group.'* (Stroke Survivor S6). As indicated within these quotes, attendance at such community based groups may be limited as a consequence of transport difficulties. This is something that requires further consideration when planning any future interventions.

4.6 RECOMMENDATIONS FOR FUTURE RESEARCH

As evident within the theoretical implications section of this chapter, further research in to the mechanisms underpinning the benefits reported by participants following attendance at the PP intervention is required. The following section provides a summary of recommendations regarding improvements to the current study designs and a summary of the areas that seem to merit further exploration.

The findings from the study indicate that the PP group is a feasible intervention for stroke survivors and carers. Although no statistically significant changes in psychological wellbeing and psychological distress were reported, mean reported changes in the intervention group were in the direction hypothesised; an increase in psychological wellbeing and a decrease in psychological distress. Furthermore, a significant increase in functional abilities was observed within those who had attended the intervention group. Given the small sample sizes used, it is recommended that future research increases the sample size and includes a treatment as usual control group and an attention control group to further enhance the quality and validity of the study. Furthermore, given the theoretical implications discussed in section 4.5.1 regarding group processes and the importance social support, future studies should also include a comparison generic social support group, such as a peer support group. This may help to further examine the efficacy of PP interventions and what the ‘active ingredient’ is in enhancing wellbeing i.e. is it increased social support. With regards to the recruitment of participants to such studies, future researchers may wish to recruit their participants from multiple community stroke services across a region. This may reduce the selection bias and provide a more representative sample of stroke survivors and carers within the community, thus increasing the generalisability of the findings to the wider community stroke population. Furthermore, given that over half of the sample of stroke survivors and carers within the studies were aged 65 or younger, it is recommended that older adults and more working age stroke survivors are recruited.

Within both studies, all participants were given the option to complete the questionnaire packs over the phone with one of the group facilitators or to complete them independently and return them via the post. Across both studies only one participant chose to complete the questionnaires over the phone. They reported that they had found this helpful and ‘[it] would have been a real task...’ to have completed them independently given their limited hand functioning and working memory difficulties. Conversely, a number of participants reported that they were glad to have the option to complete them independently as it allowed them time to consider the questions and their responses. Furthermore, as one participant indicated, because some people experience speech difficulties following their stroke and find it difficult to talk on the phone, this would not be an option for them. This is illustrated in the following quote from a participant at the focus group: *‘I don’t use my phone a great deal...I mean... I can’t do it. I get in a muddle’* (Stroke Survivor S5). Despite the majority of participants opting to complete the questionnaires independently, it is recommended that the telephone option is offered to all participants.

Further recommended methodological improvements for future research include the use of an initial cognitive screen and a checklist regarding any additional needs (auditory, visual or reading impairments) and details of any ‘reasonable’ adjustments required. All participants in the small *n* side

study were given a copy of the PowerPoint presentation and the 'optional home activity' sheets at the end of the intervention. However, participants at the focus group indicated that they would have preferred to have received this at the start of the intervention. Having the materials at the start of the intervention may have helped participants to consolidate their learning and practice the skills more between sessions, particularly those with memory difficulties. It is recommended that future research studies consider this. The author was cautious of doing this amid concerns that once participants had the materials they may not be as motivated to attend the weekly sessions which may have resulted in even higher attrition rates than those observed.

As reported in the thematic analysis in section 3.4 and again in the summary of findings earlier in this chapter, the resounding feedback from the intervention participants was the sessions were not long enough and that they wanted more sessions. Although this does have implications for the service delivering the intervention, greater benefits may be reported. For example, a greater increase in wellbeing and a significant reduction in psychological distress may have been observed had participants had a greater number of sessions and more opportunities to practice the skills taught. Of the studies evaluating the efficacy of PP interventions within physical health reviewed, all evaluated PP interventions that were delivered over more than five sessions. It may also be worth considering extending the time lapse between the end of the intervention and the follow-up session to six-twelve months; this would enable the longevity of the intervention to be more rigorously tested.

Within the literature there are inconsistencies reported regarding the relationship between PTG and psychological wellbeing (Carver & Antoni, 2004; Park & Helgeson, 2006), therefore further research is recommended to examine this relationship as this has significant implications regarding developing interventions to promote both psychological wellbeing and encouraging facilitating PTG within both physical health and mental health settings. Furthermore, such research could provide a greater understanding of the mechanisms underpinning the efficacy of the PP intervention developed and evaluated within the two current studies. The inclusion of the post traumatic growth inventory ([PTG-I] Tedeschi & Calhoun, 1996) measure within the questionnaire pack may help to inform this research question regarding the relationship between PTG and psychological wellbeing.

No formal measure of physical health was used within either of the current studies, other than a daily functional abilities measure, the FAI. Given the growing evidence base regarding the benefits of practising PP skills and physical health outcomes (Peterson, 2006; Stewart & Yuen, 2011), it is recommended that future research studies may consider the inclusion of a physical health measure when evaluating the efficacy of a PP intervention.

Finally, in the current studies there was no measure of social support and its perceived benefits, but, feedback obtained from participants at the focus group emphasised the importance of this to them and their sense of wellbeing. It is recommended that future research studies evaluating the efficacy of a PP intervention include a measure of social support such as the Multidimensional Scale of Perceived Social Support ([MSPSS] Zimet, 1988). The inclusion of this measure would provide further insight into the mechanisms underpinning the efficacy of the PP intervention and further support of the proposed relationship between psychological wellbeing, psychological distress and social support (Huang *et al.* 2010; Stamatakis, 2015).

4.7 CONCLUSIONS

Strokes are the most frequent cause of death and disability in the UK (ONS, 2014). They not only impact on the individual physically, cognitively and psychologically, but also have a profound impact on the systems (family, spouses, carers) surrounding them. Beyond this, the impact of a stroke has significant cost implications for healthcare services and the wider UK economy (NAO, 2010). Within stroke care, the need for routine psychological input has been recognised and integrated within both local and national guidelines. Despite the recognition of the importance of routine psychological input following a stroke access to psychology services remains limited, particularly within the community setting. Furthermore, the evidence base for the efficacy of psychological interventions remains sparse, with the majority of research evaluating the efficacy of 1:1 interventions (House, 2000; Johnston *et al.* 2007; Jones *et al.* 2009; Rasquin *et al.* 2009; Watkins *et al.* 2011). However, there is growing evidence regarding the efficacy of group-based psychological interventions (Gurr, 2009; Ivey-Wiliams, 2015; Morris & Morris, 2011; Stamatakis, 2015; Stewart *et al.* 1998). Furthermore, this is a more cost-effective method of improving access to psychological services, particularly for those within the community setting. Encouragingly, there has been an increasing interest and development in the exploration of wellbeing based approaches, such as PP, within both mental health and physical health populations. To date there have been no studies published evaluating the efficacy of PP interventions within the stroke population.

This thesis aimed to assess both the feasibility and efficacy of a group based PP intervention with stroke survivors and carers living within the community setting. The findings from the studies suggest that the approach is feasible and that it may be effective in improving individuals' daily functional abilities, however, further research is required to examine the efficacy of the intervention in improving stroke survivors and carers' psychological wellbeing. The findings provided further support for the theorised reciprocal relationship between psychological wellbeing and psychological

distress. A significant relationship between functional ability and psychological wellbeing and functional ability and psychological distress was also indicated. As discussed in the previous section, these findings have important implications for service-users and carers, particularly within the community setting. Furthermore, it is hoped that the findings from these studies may be used to improve current post-stroke care and that the approach (PP) may be incorporated into individual rehabilitation programmes and at a service delivery level to encourage a greater focus on psychological wellbeing following a stroke.

The author acknowledges there were a number of methodological limitations identified within each of the studies reported which may have implications for the quality and generalisability of the findings reported. All attempts were made to address these issues, but, some, such as sample size and attrition, were unavoidable. It is hoped that the inclusion of the qualitative analysis complemented the quantitative data provided and provided a richer understanding of the feasibility and efficacy of this intervention with stroke survivors and carers despite the small sample size. Practical considerations regarding further research with stroke survivors and carers has been provided in addition to recommended improvements to the current study designs. Further validation of the efficacy of PP interventions within stroke is recommended, and a greater understanding of the mechanisms involved in enhancing wellbeing following stroke is essential.

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APPENDICES

Appendix A: Summary of key features of studies included in the systematic review.

Quantitative- Experimental Design (Group)		
Study (Country)		Andrewes <i>et al.</i> (2014) (Scotland)
n	<i>Total:</i>	10-patients with brain injuries. One participant withdrew after 7 weeks.
	<i>Intervention:</i>	5 –12-week Positive Psychology group programme and ‘usual treatment’ . *
	<i>Control:</i>	5-‘usual treatment’ . *
Sample Details	<i>Gender</i>	100% male-intervention, 80% male-control
	<i>Mean Age (SD)</i>	38.3 (5.9)-intervention, 46.0 (11.1)-control
	<i>Physical Health Condition</i>	Brain injury with ‘complex needs’ and ‘challenging behaviour’.
Method	<i>Recruitment</i>	Participants recruited from residential rehabilitation hospital. Intervention offered as an adjunctive treatment to ‘usual treatments’ . * Participants randomly allocated.
	<i>Design</i>	Pre-post intervention design.
	<i>Data Analysis</i>	Wilcoxin Signed-Rank test, Mixed model ANOVA, non-parametric Wilcoxin signed-rank and repeated-measures ANOVA.
Study Procedure		Twelve once-weekly sessions. All completed HADS at base-line and at end of the 12-week programme. All participants completed Authentic Happiness Index [AHI] at base-line and at end of the programme. The intervention group completed it again following the ‘Three Good Things’ session. The Head Injury Semantic Differential Scale II [HISDS] was completed by the intervention group at base-line, following the ‘Signature Strengths’ session and at the end of the programme, Brief Strengths Test also completed during this session.
Positive Psychology [PP] Intervention Details		PP techniques including gratitude, values and strengths.
Key Outcome Measures		<ul style="list-style-type: none"> • HADS (anxiety and depression) • AHI (happiness) • HISDS (self-identity) • BST (strengths and virtues)
Key Findings		Significant interaction between groups and time; intervention group scored significantly higher on the AHI than the control group (p=0.02). No other significant results.
Key Limitations		<ul style="list-style-type: none"> • Controls did not complete the HISDS measure. • AHI not validated in the brain injury population. • Small sample size. • No traditional therapy comparison group. • No longer-term follow-up. • Details of other 10 sessions not provided. • No details on who delivered the groups.

Acronym Key:

- HADS = Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1984)
- AHI = Authentic Happiness Scale (Seligman, 2006)
- HISDS = Head Injury Semantic Differential Scale II (Tyerman & Humphrey, 1987)
- BST = Brief Strength's Test (Seligman, 2006)

* Individual psychotherapy (Cognitive Behavioural Therapy [CBT]/Motivational Interviewing [MI]) for low mood, anxiety and/or substance mis use, psycho-education group and 8/10 receiving pharmacological treatment for their 'mood disorders'.

Quantitative- Experimental Design (Group)		
Study (Country)		Cerezo et al. (2014) (Spain)
n	<i>Total:</i>	175 - patients with breast cancer.
	<i>Intervention:</i>	87-positive psychology group.
	<i>Control:</i>	99-waitlist.
Sample Details	<i>Gender</i>	100% female.
	<i>Mean Age (SD)</i>	No details provided.
	<i>Physical Health Condition</i>	Breast cancer
Method	<i>Recruitment</i>	Participants recruited from the Association for the Care of Women with Breast Cancer (Malaga, Spain). Participants were randomly assigned to the experimental or waitlist group.
	<i>Design</i>	RCT, pre-post design
	<i>Data Analysis</i>	<i>t</i> test, χ^2 , and ANCOVA
Study Procedure		Fourteen two-hour sessions once per week. Group comprised of 10-15 participants. Measures were administered prior to and immediately post intervention.
Positive Psychology [PP] Intervention Details		PP group focused on improving psychological strengths and enhancing positive psychology-based styles of coping. The goal of the sessions was to promote better wellbeing, happiness, emotional intelligence, optimism, resilience and self-esteem. Waiting list control received group immediately after intervention group.
Key Outcome Measures		<ul style="list-style-type: none"> • Satisfaction with Life Scale (wellbeing) • Happiness Likert Scale (wellbeing) • Affective Scale (affect) • Trait Meta-Mood Scale-24 [TMMS] (metacognition of emotions) • Life Orientation Test-Revised [LOT-R] (optimism) • Connor-Davidson Resilience Scale [CD-RISC] (resilience) • Rosenberg Self-Esteem Scale (self-esteem)
Key Findings		After receiving the intervention significant differences between the pre-test and post-test scores were reported on each of the measures administered ($p < 0.05$). Intervention group participants reported improved self-esteem, emotion intelligence, resilience, optimism, positive affect, wellbeing and happiness.
Key Limitations		<ul style="list-style-type: none"> • Lack of generalisability – all participants were members of a breast cancer association, which suggests some already active coping strategies and motivation to engage in the study. • No traditional therapy/attention control comparison. • No details about the therapist delivering the group. • No longer-term follow-up. • Age of participants not included.

Quantitative- Quasi-Experimental Design (Group)		
Study (Country)		Hashemi and Raghibi (2014) (Iran)
n	<i>Total:</i>	11-breast cancer patients
	<i>Intervention:</i>	11- positive psychology group
	<i>Control:</i>	0
Sample Details	<i>Gender</i>	100% female.
	<i>Mean Age (SD)</i>	48.72 (not provided).
	<i>Physical Health Condition</i>	Breast cancer.
Method	<i>Recruitment</i>	Details not provided.
	<i>Design</i>	Pre-post quasi-experimental design.
	<i>Data Analysis</i>	Independent <i>t</i> -tests.
Study Procedure		Eight once weekly structured group therapy sessions. Measures administered pre and post intervention. Weekly happiness scores were obtained after each session.
Positive Psychology [PP] Intervention Details		Eight weekly sessions. The intervention included teaching participants how to enhance their appreciation of life, relationships with others and increase new possibilities. Exercises included expressing gratitude, acts of kindness and noticing positive experiences.
Key Outcome Measures		<ul style="list-style-type: none"> ▪ Personal Strength Survey (Seligman) ▪ Post-Traumatic Growth Inventory (PTGI) ▪ Munsch Happiness Scale
Key Findings		Significant difference in mean pre and post scores on four of the five post-traumatic growth components (new possibilities, personal strengths, appreciation of life and relationships with others) as measured via the PTGI ($p < 0.05$). Munsch and Personal Strength Survey results not reported.
Key Limitations		<ul style="list-style-type: none"> • No details regarding recruitment procedure. • No details regarding who delivered the group and their qualifications. • No longer-term follow-up. • No control group comparison. • No traditional therapy/attention control comparison. • Small sample size.

Quantitative- Quasi-Experimental Design (Group)			
Study (Country)		Howell <i>et al.</i> (2015) (Canada)	
		Pilot Study (1a)	Main Study (1b)
n	<i>Total:</i>	10-chronic pain participants.	24- chronic pain participants
	<i>Intervention:</i>	10-hope-focused counselling group.	24- hope-focused counselling group
	<i>Control:</i>	No control group.	
Sample Details	<i>Gender</i>	80% females, 20% males.	87.5% females, 12.5% males
	<i>Mean Age (SD)</i>	49.7 years (12.26)	49.5 years (12.06)
	<i>Physical Health Condition</i>	Chronic Pain (arthritis, chronic constipation, chronic fatigue syndrome, chronic pain syndrome, migraines, degenerative disk disease, damaged ligaments, Ehlers-Danlos syndrome, endometriosis, fibromyalgia, nerve damage, osteoarthritis, scoliosis, stroke, tarsal tunnel syndrome, tendonitis, vulvodynia)	
Method	<i>Recruitment</i>	Participants were referred by physicians, previous group members, and self-referral via posters, leaflets, public presentations, and community service agency website.	
		Participants assigned to one of two groups of five.	Participants assigned to one of four groups (5-7 in each).
	<i>Design</i>	Pre-post design.	
	<i>Data Analysis</i>	Descriptive statistics, <i>t</i> -tests, repeated-measures MANOVA.	Descriptive statistics, repeated-measures ANOVA, paired <i>t</i> -tests,
Study Procedure		Six weekly 2-hour sessions, led by 2 counselling psychologists. Measures administered pre and post intervention.	
Positive Psychology [PP] Intervention Details		Intervention was designed to increase emotional wellbeing and restore sense of empowerment and strengths-based action, and to encourage participants to use positive psychology tools to overcome their difficulties. Intervention used techniques from PP, narrative therapy and psycho-educational approaches.	
Key Outcome Measures		<ul style="list-style-type: none"> ▪ RAND 36-Item Health Survey Pain Scale (pain) ▪ State Hope Scale (hope) ▪ Positive Psychology Inventory [PPI](wellbeing) ▪ Chronic Pain Acceptance Scale [CPAS](acceptance of pain) ▪ Pain Catastrophizing Scale [PCS] (catastrophizing thoughts/feelings) ▪ Study 1b – addition of Comprehensive State Hope Scale (hope) 	
Key Findings		Significant change in wellbeing scores (PPI) from pre to post intervention ($p < 0.01$). Significant increase in pain acceptance (CPAS) from pre-post intervention ($p < 0.05$). No significant change in State Hope Scale scores ($p > 0.05$).	Significant change in wellbeing scores (PPI) from pre to post intervention ($p < 0.01$). Significant reduction in pain catastrophizing (PCS) ($p < 0.01$). Significant increase in Comprehensive State Hope Scale scores from pre-post ($p < 0.001$). No significant increase in pain acceptance (CPAS) from pre-post intervention ($p > 0.05$).
Key Limitations		<ul style="list-style-type: none"> • No control group. • Some analyses underpowered. • No longer-term follow-up. • Heterogeneous samples. • Mainly female participants. • Limited sample sizes. 	

Quantitative- Experimental Design (Group)		
Study (Country)	Sanjuán <i>et al.</i> (2016) (Spain)	
n	<i>Total:</i>	108 cardiac patients
	<i>Intervention:</i>	57- cardiac rehabilitation programme (CRP) and programme to improve wellbeing (PIW), (<i>n</i> = 50 in final analysis)
	<i>Control:</i>	51 – CRP only (<i>n</i> = 47 in final analysis)
Sample Details	<i>Gender</i>	82.4 % males in intervention group 76.5 % males in control group
	<i>Mean Age (SD)</i>	Intervention group - 54.4 (9.1) Control group – 54.4 (9.5)
	<i>Physical Health Condition</i>	Coronary heart disease (myocardial infarction or angina pectoris)
Method	<i>Recruitment</i>	Participants recruited from a single Cardiac Rehabilitation Unit. Intervention offered as an adjunctive treatment to usual cardiac rehabilitation programme. Randomly allocated to control or intervention.
	<i>Design</i>	Pre-post design.
	<i>Data Analysis</i>	Pearson’s correlations and mixed design (between and within subjects) ANOVA.
Study Procedure	All participants completed the following measures at baseline (week 1) and at the end of the programmes (week 8): Depressive Symptom Subscale of Symptoms Checklist revised [SCL-90-R], Cynicism Subscale of Cook-Medley Hostility Scale, Positive and Negative Affect Scales [PANAS] and functional capacity using a metabolic equivalent test [MET]. The PIW and CRP programmes started and ended simultaneously.	
Positive Psychology [PP] Intervention Details	Six one-hour sessions once per week for 6 weeks. The intervention was facilitated by a psychologist in a group face-to-face format. In each session the facilitator outlined the benefits of positive emotions on health, presented different activities to increase positive emotions, explained the activities participants should practice that week (awareness of received acts of gratitude, three good things and random acts of kindness), gave participants the opportunity to try out the previously explained activity in the session, and answered any questions. Participants were asked to keep a record of their practice which were subsequently checked by the facilitator.	
Key Outcome Measures	<ul style="list-style-type: none"> ▪ SCI-90-R (depression) ▪ Cynicism Hostility Subscale ▪ PANAS (positive and negative affect) ▪ Functional ability 	
Key Findings	Significant decrease in hostility and negative affect in the intervention group following attendance at the PIW intervention. Significant increase in positive affect in the intervention group following attendance at the PIW intervention. No significant change in reported depression symptoms in either group. No significant changes in hostility, negative affect or positive affect observed in the control group.	
Key Limitations	<ul style="list-style-type: none"> • Biased sample – recruited from one cardiac rehabilitation unit. • Females are underrepresented. • Researcher not blind to the conditions. • No longer term follow- up. 	

	<ul style="list-style-type: none">• Unequal participant attendance at the PIW sessions (ranged from 3-6 sessions).• No formal measure of wellbeing other than affect.
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Quantitative - Experimental Design (one-to-one intervention) Feasibility Study		
Study (Country)		Cullen <i>et al.</i> (2016) (Scotland)
n	<i>Total:</i>	27 – acquired brain injury patients [ABI].
	<i>Intervention:</i>	14- brief positive psychotherapy intervention and usual treatment, (n=8 final analysis).
	<i>Control:</i>	13-usual treatment (n=7 final analysis).
Sample Details	<i>Gender</i>	63% male, 37% females.
	<i>Mean Age (SD)</i>	Mean not provided, Median age 58.0-control, 54.0-intervention.
	<i>Physical Health Condition</i>	Acquired brain injury (82% ischaemic stroke survivors).
Method	<i>Recruitment</i>	Participants recruited from stroke out-patients clinics, stroke psychology out-patient waiting list and Community Treatment Centre for Brain Injury. Patients randomly assigned to intervention group or usual treatment group.
	<i>Design</i>	Pre-post longitudinal design.
	<i>Data Analysis</i>	No formal data analysis (pilot study).
Study Procedure		Intervention participants received individual brief positive psychotherapy once weekly for 8 weeks led by research psychologist. All potential participants were screened for eligibility; Depression Anxiety Stress Scale [DASS-21], Frenchay Aphasia Screening Test. At baseline all participants completed cognitive tests (ToPF, RBANS, Digit Span, Letter Fluency), Awareness Questionnaire [AQ] Signature Strengths measure, Modified Caregiver Strain Index [M-CSI] and Mayo Portland Adaptability Inventory [MPAI-4]. All participants completed the DASS-21 and Authentic Happiness Inventory [AHI] at 5, 9 and 20 weeks post baseline by blinded assessor. M-CSI and MPAI-4 re-administered to all participants at week 20 by telephone or post.
Positive Psychology [PP] Intervention Details		Manualised brief psychotherapy programme covering a range of therapeutic exercises and homework tasks focused on character strengths, gratitude, savouring, optimism, hope, and personal growth. Accompanying workbook containing session summaries were provided.
Key Outcome Measures		<ul style="list-style-type: none"> • DASS-21 (emotional distress) • AHI (happiness) • AQ (awareness) • Signature Strengths • M-CSI • MPAI-4
Key Findings		Treatment feasible to deliver, favourable feedback.
Key Limitations		<ul style="list-style-type: none"> • No traditional therapy/attention control comparison. • Small sample size. • High dropout rate. • Heterogeneous sample (controls older than intervention group, more males than females). • 82% Ischaemic strokes- query generalisability to ABI. • Extraneous variables-participants receiving psychological treatment/ pharmacological treatment outside of the study.

Quantitative – Quasi-Experimental Design (one-to-one phone-based intervention)		
Study (Country)		Huffman <i>et al.</i> (2015) (USA)
n	<i>Total:</i>	48- acute coronary syndrome patients.
	<i>Intervention:</i>	23- positive psychology intervention (n=20 analysis).
	<i>Control:</i>	25- treatment as usual (TAU) cohort recruited after completion of the feasibility study (n=22 analysis)
Sample Details	<i>Gender</i>	48% females, 52% males.
	<i>Mean Age (SD)</i>	60.4 years (11.7)
	<i>Physical Health Condition</i>	Acute Coronary Syndrome
Method	<i>Recruitment</i>	Recruited from three inpatient cardiac units.
	<i>Design</i>	Pre-post design, feasibility study.
	<i>Data Analysis</i>	Cohen's <i>d</i> , descriptive statistics, paired <i>t</i> -tests, and independent samples <i>t</i> -tests.
Study Procedure		Eight-week phone-based PP intervention. Participants given treatment manual containing general introduction, chapter on each weekly exercise and a structured grid to schedule PP exercises. Completion of the first exercise occurred during hospitalisation. After discharge subsequent exercises completed independently and reviewed by interventionists via a 20-30 minute phone session. Interventionist reviewed previous week's exercise; explored thoughts/feelings associated with the exercise, gathered feedback about exercise and described the following week's exercise. During final phone call participants co-constructed a plan with interventionists for continuing to use PP exercises and skills. Measure administered at three time points: baseline, each week during the intervention period, at the end of the intervention. Interventionists were doctoral-level psychologists/masters-level social worker)
Positive Psychology [PP] Intervention Details		PP treatment manual and weekly PP exercises; recalling positive events, gratitude, using personal strengths, meaningful activities, recalling past successes, acts of kindness, weeks 7 and 8 participants chose the exercise they wished to repeat.
Key Outcome Measures		<ul style="list-style-type: none"> • PANAS (positive affect) • LOT-R (optimism) • HADS (anxiety and depression)
Key Findings		Improvement of positive affect (PANAS) from baseline to follow-up ($d=0.46$, $p=0.053$) and anxiety/depression (HADS-total) from baseline to follow-up ($d=0.69$, $p=0.008$). No significant change in optimism (LOT-R) from baseline to follow-up ($d=0.08$, $p>0.10$). Intervention group demonstrated greater improvement in positive affect scores and reduction in anxiety and depression scores when compared to TAU group (not concurrent).
Key Limitations		<ul style="list-style-type: none"> • Small sample size. • Opportunistic sample from single medical centre. • Unclear if participants engaged in other rehabilitation programmes. • No traditional therapy/attention control comparison.

Quantitative - Experimental Design (one-to-one phone-based intervention)		
Study (Country)		Huffman <i>et al.</i> (2011) (USA)
n	<i>Total:</i>	23 - Acute cardiovascular disease.
	<i>Intervention:</i>	9- positive psychology intervention group. 7- attentional control group
	<i>Control:</i>	7- relaxation response intervention group (active control).
Sample Details	<i>Gender</i>	Not provided.
	<i>Mean Age (SD)</i>	Not provided.
	<i>Physical Health Condition</i>	Acute cardiovascular disease (acute coronary syndrome or decompressed heart failure).
Method	<i>Recruitment</i>	Recruited from three inpatient cardiac units; randomly assigned to of the three groups.
	<i>Design</i>	Pre-post feasibility trial.
	<i>Data Analysis</i>	Descriptive statistics, Cohen's <i>d</i>
Study Procedure		Eight-week intervention study. Relaxation group: initially led through 20-minute relaxation exercise and given manual describing the exercise and its potential benefits- subjects then given audio CD and instructed to practice daily for 20 minutes for 8 weeks. Weekly call from study trainer to review progress and problem-solve any difficulties in doing daily exercise. PP intervention group: given treatment manual detailing rationale, evidence for the interventions and details of weekly activities. First exercise completed whilst an in-patient, following discharge subsequent exercises completed independently and reviewed via a 15-minute phone session. Attentional control participants: given treatment manual detailing rationale and details of weekly activities. Parallel intervention procedure to PP intervention group detailed above. Measure administered at two time points: baseline and at the end of the intervention. Interventionists were masters-level social workers).
Positive Psychology [PP] Intervention Details		PP treatment manual and weekly PP exercises; recalling positive events, gratitude, using personal strengths, meaningful activities, recalling past successes, acts of kindness, weeks 7 and 8 participants chose the exercise they wished to repeat.
Key Outcome Measures		<ul style="list-style-type: none"> • Feasibility and utility scores • Centre for Epidemiological Studies- Depression Scale • Subjective Happiness Scale • HADS-A (anxiety subscale) • Medical Outcomes Study Short-Form (quality of life)
Key Findings		Greater improvement in depressive symptoms, anxiety, and quality of life relative to participants in the other two groups observed. Active control participants had greatest improvements in happiness. No findings statistically significant ($p>0.5$).
Key Limitations		<ul style="list-style-type: none"> • Small sample size (under-powered). Opportunistic sample from single medical centre. • Unclear if participants engaged in other treatment programmes. • No information regarding gender or age of participants.

Quantitative – Quasi-Experimental Design (one-to-one intervention)		
Study (Country)		Moskowitz <i>et al.</i> (2012) (USA)
<i>n</i>	<i>Total:</i>	11-HIV positive patients, 9 completed.
	<i>Intervention:</i>	11-positive psychology intervention.
	<i>Control:</i>	No control group – pilot study No-treatment historical comparison group (observational study in lab using same outcome measures)
Sample Details	<i>Gender</i>	75% males, 25% females
	<i>Mean Age (SD)</i>	38 (SD not reported)
	<i>Physical Health Condition</i>	HIV (diagnosed within the past 4 months)
Method	<i>Recruitment</i>	Participants recruited through HIV clinics and community sites. Recruited via flyers and direct contact with study staff at HIV testing sites and clinics.
	<i>Design</i>	Pre-post design.
	<i>Data Analysis</i>	Paired <i>t</i> -tests
Study Procedure		Participants attended 5 weekly one-to-one sessions with a facilitator. Each session lasted 45-60 minutes. Measures were administered at week 1, an in-person follow-up session after completing the intervention and by phone 4 weeks later.
Positive Psychology [PP] Intervention Details		Eight PP skills were taught over 5 sessions; noticing positive events, capitalising in positive emotions, gratitude, mindfulness, positive reappraisal, personal strengths, attainable goals and acts of kindness. Sessions comprised of teaching and practice of skills, discussions and weekly home practice tasks and a workbook to record their daily practice.
Key Outcome Measures		<ul style="list-style-type: none"> • Differential Emotional Scale [DES] (affect) • Five-Factor Mindfulness Scale [FFMQ] (mindfulness)
Key Findings		Significant increase in reported positive affect from pre-intervention to the first follow-up (one week after intervention completion) ($p=0.016$), mean increase of 3.9 points. Significant decrease in reported negative affect from pre-intervention to the first follow-up ($p=0.016$), mean decrease of 5.1 points. Overall effect size for changes pre-intervention to 4 weeks post-intervention were large (Cohen's $d=1.14$ and 1.98 for positive and negative affect). No other significant results (mindfulness).
Key Limitations		<ul style="list-style-type: none"> • Small sample size. • Bias – participants paid \$30 for each completed session, total of \$180 if all sessions and follow-up assessment completed. • Opportunistic sample/self-selector bias. • Venue of group not consistent throughout. • No details about the facilitator's role/credentials.

Quantitative - Experimental Design (one-to-one intervention)		
Study (Country)		Van Haitsma <i>et al.</i> (2013) (USA)
n	<i>Total:</i>	180-residents with mild to advanced dementia.
	<i>Intervention:</i>	43-attention control [AC] group plus usual care. 44- individualised positive psychotherapy intervention [IPPI] plus usual care.
	<i>Control:</i>	93- usual care [UC].
Sample Details	<i>Gender</i>	82.2% females, 17.8% males.
	<i>Mean Age (SD)</i>	88.7 years (no SD provided).
	<i>Physical Health Condition</i>	Dementia
Method	<i>Recruitment</i>	Participants recruited from one nursing home, randomly allocated to UC, AC or IPPI.
	<i>Design</i>	RCT, pre-post design.
	<i>Data Analysis</i>	Behaviour observations analysed using GLM multivariate programme, MANCOVA, univariate GLM.
Study Procedure		Three-week treatment period; on average participants received six IPPIs during this time. R Outcome measures collected through direct observation conducted by research assistants (RA). RAs conducted baseline observations 5 minutes before the intervention, 10 minutes during the intervention, 5 minutes after the intervention and thirty minutes after the intervention.
Positive Psychology [PP] Intervention Details		Certified Nursing Assistant [CAN] led activities that matched the participants interests and ability across 5 domains(30 activity options total); physical exercise, music, reminiscing, activities of daily living, and sensory stimulation. Same CNA assigned to each participant within the IPPI group.
Key Outcome Measures		<ul style="list-style-type: none"> • Activities of Daily Living [ADL] • Preference for Everyday Living Inventory-Nursing Home [PELI-NH] • Mini-Mental State Exam (MMSE) • Multidimensional Observation Scale of Elderly Subjects [MOSES]
Key Findings		When compared to the UC group, participants in the IPPI and AC groups experienced more pleasure, alertness, engagement, positive touch and positive verbal behaviour. The AC reportedly displayed more anger and negative verbal behaviour than the UC and PP groups; individualised intervention has more positive outcomes for the participant than those that are standardised.
Key Limitations		<ul style="list-style-type: none"> • Impact of direct observations • Ethics- consent provided by participant's 'responsible party'. • No details about the AC intervention. • Generalisability of sample –Caucasian, Jewish. • Direct observations- could not record simultaneous behaviours.

Qualitative- Quasi-Experimental Design (Group)		
Study (Country)		Larsen <i>et al.</i> (2015) (Canada)
n	<i>Total:</i>	12-people experiencing chronic pain.
	<i>Intervention:</i>	12- positive psychology group.
	<i>Control:</i>	0
Sample Details	<i>Gender</i>	66.66 % females, 33.33% males.
	<i>Mean Age (SD)</i>	Not provided, range from 20-70 years old.
	<i>Physical Health Condition</i>	Chronic pain.
Method	<i>Recruitment</i>	Participants were recruited through a community research and counselling facility affiliated with a Canadian university. Recruitment occurred through advertisement on the counselling facilities website, leaflets distributed to medical clinics, non-profit health agencies, chronic pain support groups, public presentations and community health-related newsletters.
	<i>Design</i>	Qualitative case study
	<i>Data Analysis</i>	Structured Interpersonal Recall [IPR] interviews were conducted, transcribed and analysed using an interpretive inquiry analysis.
Study Procedure		Participants attended six two-hour weekly group sessions led by two psychologists. Session three (hope and strength based intervention) was video-recorded; participants engaged in an Interpersonal Process Recall [IPR] interview with interviewers 2-4 days after the session while watching the video. Interviews ranged from 1 to 3 hours.
Positive Psychology [PP] Intervention Details		The sessions were designed to increase emotional wellness and hope of people experiencing pain, restore a sense of empowerment and strengths-based action and use hope strategies and positive psychology tools.
Study Evaluation		Structured Interpersonal Recall [IPR] interviews were conducted, transcribed and analysed using an interpretive inquiry analysis.
Key Findings		4 key themes related to hope were identified; Awareness (awareness of strengths, new perspectives), Comparison (inspiration, capable, darker side of comparison), Communion (creating community in the group, receiving support within the group, hope for others in the group), Universality/Connection (shared hope or strength, shared difficulty).
Key Limitations		<ul style="list-style-type: none"> • Recruitment biases (self-selected) • No mean age provided. • Small sample size. • Heterogeneity of the group – ages, years of pain (5-57), source of pain, some previously attended individual/group therapy sessions. • Demand characteristics- sessions video recorded.

Appendix B: SURE (2013a) quality framework checklist to critically appraise quantitative studies.

Scoring Guidance: Main items (criteria numbered and in bold) were rated using: 2= Yes (Good); 1= Can't Tell (Mixed); 0 = No (Poor). Sub headings (criteria not in bold) guided the scoring of main items and were rated using: Yes (y), No (n), Not Reported (nr) or Non-applicable (n/a).										
	<i>Andrewes et al. (2014)</i>	<i>Cerezo et al. (2014)</i>	<i>Hashemi & Raghibi (2014)</i>	<i>Howell et al. (2015)</i>	<i>Sanjuán et al. (2016)</i>	<i>Cullen et al. (2016)</i>	<i>Huffman et al. (2011)</i>	<i>Huffman et al. (2015)</i>	<i>Moskowitz et al. (2012)</i>	<i>Van Haltsma et al. (2013)</i>
Quality Framework Criteria										
1. Does the study address a clearly focused question / hypothesis	2	2	1	1	2	2	2	2	1	2
Population?	y	y	y	y	Y	y	y	y	y	y
Intervention?	y	y	y	y	Y	y	y	y	y	y
Comparator/ Control	y	y	y	y	Y	y	y	y	y	y
Outcomes?	y	y	y	y	Y	y	y	y	y	y
2. Was the population randomised? If YES, were appropriate methods used (e.g. opaque envelopes)?	2	1	1	0	2	2	1	0	0	1
3. Was allocation to intervention or comparator groups concealed?	1	1	0	0	2	1	1	0	0	1
Is it possible for those allocating to know which group they are allocating people to?	nr	nr	nr	nr	n	nr	nr	y	y	n
4. Were participants / investigators blinded to group allocation?	1	1	0	0	0	2	1	0	0	0
If NO, was assessment of outcomes blinded?	n/a	n/a	n	n	n	y	y	y	y	y
5. Were interventions (and comparisons) well described and appropriate?	2	2	1	1	2	2	1	2	1	1
Aside of the intervention were groups treated equally?	y	y	nr	nr	Y	y	y	y	y	y

Appendices

Was exposure to intervention and comparison adequate?	y	y	n/a	n/a	y	nr	y	n/a	n/a	nr
Was contamination acceptably low?	y	y	n/a	n/a	Y	nr	nr	y	n/a	nr
6. Was ethical approval sought and received?	2	1	1	1	2	2	1	1	1	1
7. Was a trial protocol published?	1	1	1	1	1	1	1	1	1	1
Was a protocol published in a journal or clinical trial registry before participants were recruited?	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
If a protocol is available, are the outcomes reported in the paper listed in the protocol?	nr	nr	nr	nr	nr	nr	nr	nr	nr	n
8. Were the groups similar at the start of the trial?	1	1	1	1	2	2	1	1	1	1
Are baseline characteristics provided and discussed (e.g. age)?	y	nr	y	y	y	y	n	y	y	y
Are any statistically significant differences adjusted for?	nr	nr	nr	nr	nr	y	nr	nr	nr	nr
Are any differences >10%?	y	n	nr	n	n	y	nr	n	y	y
9. Was the sample size sufficient?	1	1	1	1	2	1	1	1	1	1
Were there enough participants?	n	y	nr	y	y	n	nr	nr	nr	y
Was there a power calculation?	n	y	nr	y	nr	nr	n	n	n	y
Were there sufficient participants?	nr	n	nr	nr	nr	nr	nr	nr	nr	nr
10. Were participants properly accounted for?	1	1	1	1	1	1	1	1	1	1
Was follow-up $\geq 80\%$?	y	n	nr	nr	n	n	y	y	y	y
Were patients analysed in the groups to which they were randomised?	y	y	n/a	n/a	y	y	y	n/a	n/a	y
Was an Intention to Treat analysis conducted?	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
Was the follow-up period long enough?	n	n	n	n	n	y	n	n	n	n
11. Data analysis: are you confident with the authors' choice and use of statistical methods?	1	1	1	1	2	1	1	1	1	1
Were estimates of effect size given?	n	y	nr	y	y	n	n	y	n	n

Appendices

Were the analytical methods appropriate?	y	y	y	y	y	y	y	y	y	y
Was the precision of intervention effects (confidence intervals given)?	nr	nr	nr	nr	y	y	n	n	n	n
12. Results: were outcome measures reliable (e.g. objective or subjective)?	2	2	2	2	2	2	2	2	1	2
Were all outcome measurements complete?	y	y	y	y	y	y	y	y	y	y
Were all important outcomes assessed?	y	y	y	y	y	y	y	y	n	y
Are the authors' conclusions adequately supported by the results?	y	y	y	y	y	y	y	y	y	y
13. Is any sponsorship / conflict of interest reported?	0	0	0	0	0	0	0	0	0	0
14. Finally...consider: did the authors identify any limitations?	2	2	1	2	2	2	2	2	1	2
Are the conclusions the same in the abstract and the full text?	y	y	y	y	y	y	y	y	y	y
TOTAL QUALITY SCORE (/28)	19/28	17/28	12/28	12/28	22/28	21/28	16/28	14/28	10/28	15/28

Appendix C: SURE (2013b) quality framework checklist to critically appraise qualitative studies.

Scoring Guidance: Main items (criteria numbered and in bold) were rated using: 2= Yes (Good); 1= Can't Tell (Mixed); 0 = No (Poor).	
Sub headings (criteria not in bold) guided the scoring of main items and were rated using: Yes (y), No (n), Not Reported (nr) or Non-applicable (n/a).	
	Larsen <i>et al.</i> (2015)
Quality Framework Criteria	
1. Does the study address a clearly focused question / hypothesis?	1
Setting?	y
Perspective?	y
Intervention or Phenomena?	y
Comparator / Control (if any?)	n
Evaluation / Exploration?	y
2. Is the choice of qualitative method appropriate?	2
Do the authors discuss how they decided which method to use?	y
Is it an exploration of behaviour / reasoning / beliefs?	y
3. Is the sampling strategy clearly described and justified?	1
Is it clear how participants were selected?	y
Do the authors explain why they selected these particular participants?	n/a
Is detailed information provided about participant characteristics and about those who chose not to participate?	y
4. Is the Method of data collection well described?	2
Was the setting appropriate for data collection?	y
Is it clear what methods were used to collect data? Type of method (e.g. focus groups) and tools (e.g. notes)?	y
Is there sufficient detail of the methods used (e.g. how any topics / questions were generated and whether they were piloted?)	y
Were the methods modified during the study? If YES, is this explained?	n
Is there triangulation of data (i.e. more than one source of data collection)?	n
Do the authors report achieving data saturation?	n
5. Is the relationship between the researcher(s) and participants explored?	2
Did the researcher report critically examining / reflecting on their role and any relationship with participants particularly in relation to formulating research questions and collecting data?	y
Were any potential power relationships involved (i.e. relationships that could influence in the way in which participants respond)?	n
6. Are ethical issues explicitly discussed?	1
Is there sufficient information on how the research was explained to participants?	y
Was ethical approval sought?	nr
Are there any potential confidentiality issues in relation to data collection?	n

Appendices

7. Is the data analysis / interpretation process described and justified?	2
Is it clear how the themes and concepts were identified in the data?	y
Was the analysis performed by more than one researcher?	y
Are negative / discrepant results taken into account?	y
8. Are the findings credible?	2
Are there sufficient data to support the findings?	y
Are sequences from the original data presented (e.g. quotations) and were these fairly selected?	y
Are the data rich (i.e. are the participants' voices foregrounded)?	y
Are the expectations for the results plausible and coherent?	y
Are the results of the study compared with those from other studies?	y
9. Is any sponsorships / conflict of interest reported?	0
10. Finally...consider: did the authors identify any limitations?	2
Are the conclusions the same in the abstract and the full text?	y
TOTAL QUALITY SCORE (/20)	15/20

Appendix D: Proof of Sponsorship

Research and Innovation Services
 Director Geraint W Jones
 Gwasanaethau Ymchwil ac Arloesi
 Cyfarwyddwr Geraint W Jones



Cardiff University
 7th Floor
 30 - 36 Newport Road
 Cardiff CF24 0DE
 Wales UK
 Tel Ffôn +44(0)29 2087 5834
 Fax Ffacs +44(0)29 2087 4189
 Prifysgol Caerdydd
 Llawr 7
 30 - 36 Heol Gasnewydd
 Caerdydd CF24 0DE
 Cymru Y Deyrnas Unedig

21 July 2015

Professor Reg Morris,
 School of Psychology
 Cardiff University
 11th Floor,
 Tower Building,
 70 Park Place
 Cardiff, CF10 3AT

Dear Professor Morris,

Title: The effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.

Short title: A Positive Psychology Group for Stroke Survivors and Carers.

I understand that you are acting as Chief Investigator for the above Professional DClinPsy PhD project to be conducted by Isla McMakin.

I confirm that Cardiff University agrees in principle to act as Sponsor for the above project, as required by the Research Governance Framework for Health and Social Care.

Scientific (Peer) Review

I can also confirm that Scientific (Peer) Review has been obtained from PhD Supervisory Board at the School of Psychology, Cardiff University.

Insurance

The necessary insurance provisions will be in place prior to the project commencement. Cardiff University is insured with UMAL. Copies of the insurance certificate are attached to this letter.

Approvals

On completion of your IRAS form (for NHS REC and NHS R&D approvals), you will be required to obtain signature from the Sponsor ('Declaration by the Sponsor Representative').

Please then submit the project to the following organisations for approvals:

- An NHS Research Ethics Committee;
- Health & Care Research Wales Permissions Coordinating Unit (formerly known as NISCHR PCU) -to arrange host organisation R&D approval for Welsh NHS sites);
- English NHS Site R&D Approvals.

Once Research and Innovation Services has received evidence of the above approvals, the University is considered to have accepted Sponsorship and your project may commence.

Roles and Responsibilities

As Chief Investigator you have signed a Declaration with the Sponsor to confirm that you will adhere to the standard responsibilities as set out by the Research Governance Framework for Health and Social Care. In accordance with the University's Research Governance Framework, the Chief Investigator is also responsible for ensuring that each research team member is qualified and experienced to fulfill his delegated roles including ensuring adequate supervision, support and training.

If your study is adopted onto Health & Care Research Wales Clinical Research Portfolio you are required to upload recruitment data onto the portfolio database.



Registered Charity, 1136855 Eusen Gofrestredig

Contracts

Roles and responsibilities are adequately detailed in the research protocol – no contract required.

May I take this opportunity to remind you that, as Chief Investigator, you are required to:

- ensure you are familiar with your responsibilities under the Research Governance Framework for Health and Social Care;
- undertake the study in accordance with Cardiff University's Research Governance Framework and the principles of Good Clinical Practice;
- ensure the Research complies with the Data Protection Act 1998;
- inform Research and Innovation Services of any amendments to the protocol or study design, including changes to start /end dates and ensure any such amendments are submitted to, and approved by, the relevant bodies (e.g. RECs and/or R&D offices);
- co-operate with any audit inspection of the project files or any requests from Research & Innovation Services for further information.

You should quote the following unique reference number in any correspondence relating to sponsorship for the above project:

SPON 1442-15

This reference number should be quoted on all documentation associated with this project.

Yours sincerely



Dr K J Pittard Davies
Head of Research Governance and Contracts
Direct line: +44 (0) 29208 79274
Email: resgov@cardiff.ac.uk

Cc Isla McMakin

Appendices E: Public liability insurance certificate.

Hasilwood House
60 Bishopsgate
London EC2N 4AW
Tel: 020 7847 8670
Fax: 020 7847 8689



TO WHOM IT MAY CONCERN

20th July 2015

Dear Sir/Madam

**CARDIFF UNIVERSITY
AND ALL ITS SUBSIDIARY COMPANIES**

We confirm that the above Institution is a Member of U.M. Association Limited, and that the following covers are currently in place:-

EMPLOYERS' LIABILITY

Certificate No.	Y016458QBE0115/185
Period of Cover	1 August 2015 to 31 July 2016
Limit of Indemnity	£50,000,000 any one event unlimited in the aggregate.
Includes	Indemnity to Principals
Cover provided by	QBE Insurance (Europe) Limited and Excess Insurers.

PUBLIC AND PRODUCTS LIABILITY

Certificate of Entry No.	UM165/13
Period of Cover	1 August 2015 to 31 July 2016
Includes	Indemnity to Principals
Limit Of Indemnity	£50,000,000 any one event and in the aggregate in respect of Products Liability and unlimited in the aggregate in respect of Public Liability.
Cover provided by	U.M. Association Limited and Excess Cover Providers led by QBE Insurance (Europe) Limited

If you have any queries in respect of the above details, please do not hesitate to contact us.

Yours faithfully

Susan Wilkinson
For U.M. Association Limited



U.M. Association Limited
Registered Office: Hasilwood House, 60 Bishopsgate, London, EC2N 4AW
Registered in England and Wales No. 2731789

Appendix F: NRES Ethical approval.**Health Research Authority****NRES Committee East Midlands - Derby**

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Telephone: 0115 883 9275

19 August 2015

Miss Isla McMakin
Trainee Clinical Psychologist
Cardiff and Vale University Health Board
South Wales Clinical Psychology Doctoral Programme
11th Floor, Tower Building, 70 Park Place
Cardiff
CF10 3AT

Dear Miss McMakin

Study title:	The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.
REC reference:	15/EM/0361
Protocol number:	SPON 1442-15
IRAS project ID:	172527

Thank you for your letter of 17 August 2015, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

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, Ellen Swainston, NRESCommittee.EastMidlands-Derby@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.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

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

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" above).

Approved documents

The documents reviewed and approved by the Committee are:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering letter on headed paper [Response Letter]	1	14 August 2015
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Cardiff University Insurance Letter]	1	20 July 2015
IRAS Checklist XML [Checklist_17082015]		17 August 2015
Letter from sponsor [Confirmation of Sponsorship]	1	21 July 2015
Letters of invitation to participant [Consent to be contacted]		
Participant consent form [Stroke Survivor Consent to be Contacted]	2	14 August 2015
Participant consent form [Carer Consent to be Contacted]	2	14 August 2015
Participant consent form [Stroke Survivor Consent to Participate]	2	14 August 2015
Participant consent form [Carer Consent to Participation]	2	14 August 2015
Participant information sheet (PIS) [Stroke Survivor Information Sheet]	2	14 August 2015
Participant information sheet (PIS) [Carer Information Sheet]	2	14 August 2015
REC Application Form [REC_Form_28072015]		28 July 2015
Research protocol or project proposal [Research Proposal]	1	22 July 2015
Summary CV for Chief Investigator (CI) [Chief Investigator CV]	1	22 July 2015
Summary CV for student		
Summary CV for supervisor (student research) [Samantha Fisher]		
Summary CV for supervisor (student research) [Prof R Morris]		01 April 2015
Summary CV for supervisor (student research) [Prof Frude]		01 June 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

Reporting requirements

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.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service 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>

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/EM/0361

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely



Mr Peter Korczak
Chair

Email: NRESCommittee.EastMidlands-Derby@nhs.net

Enclosures: *"After ethical review – guidance for researchers"*

Copy to: *Ms Helen Falconer*
Mr Thomas Fairman

Appendix G: Amendment 1 approval.

Re issue 27 October 2015 – To correct version and dates on consent forms

**East Midlands - Derby Research Ethics Committee**

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Tel: 0115 8839521

07 October 2015

Miss Isla McMakin
Trainee Clinical Psychologist
Cardiff and Vale University Health Board
South Wales Clinical Psychology Doctoral Programme
11th Floor, Tower Building, 70 Park Place
Cardiff
CF10 3AT

Dear Miss McMakin

Study title:	The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.
REC reference:	15/EM/0361
Protocol number:	SPON 1442-15
Amendment number:	
Amendment date:	14 September 2015
IRAS project ID:	172527

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Cardiff Univ Employee & Public Liability Insurance Certificate]		20 July 2015
Notice of Substantial Amendment (non-CTIMP)		14 September 2015
Other [CaRRS Response Letter]		04 September 2015
Other [Introduction to Good Clinical Practice eLearning (Secondary)]		04 September 2015
Other [Recommendations letter]		14 August 2015
Participant consent form [Survivor Consent to Contact Sheet]	2	14 August 2015
Participant consent form [Survivor Consent to Participate Sheet]	2	14 August 2015
Participant consent form [Carer Consent to Participate Sheet]	2	14 August 2015

Re issue 27 October 2015 – To correct version and dates on consent forms

Participant consent form [Carer Consent to Contact Sheet]	2	14 August 2015
Participant information sheet (PIS) [Survivor information sheet (tracked changes)]	3	27 August 2015
Participant information sheet (PIS) [Carer Information Sheet]	3	27 August 2015
Research protocol or project proposal [Research Project Proposal]		01 August 2015
Summary CV for Chief Investigator (CI) [PROFESSOR REG MORRIS (APRIL, 2015)]		01 April 2015

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

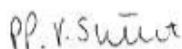
Statement of compliance

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.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/EM/0361:	Please quote this number on all correspondence
-------------	--

Yours sincerely



Mr Peter Korczak (Chair)
Chair

E-mail: NRESCommittee.EastMidlands-Derby@nhs.net

Enclosures: List of names and professions of members who took part in the review

*Copy to: Mr Thomas Fairman, Cardiff and Vale UHB
Ms Helen Falconer*

Re issue 27 October 2015 – To correct version and dates on consent forms
 East Midlands - Derby Research Ethics Committee

Attendance at Sub-Committee of the REC meeting on 01 October 2015

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Mr Peter Korczak (Chair)	Consultant Maxillofacial Surgeon	Yes	
Dr John S Fenlon	Statistical Consultant	Yes	

Also in attendance:

<i>Name</i>	<i>Position (or reason for attending)</i>
Miss Victoria Strutt	REC Manager



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CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Caerdydd a'r Fro
Cardiff and Vale
University Health Board

Ysbyty Athrofaol Cymru
University Hospital of Wales

Heath Park,
Cardiff, CF14 4XW
Phone 029 2074 7747
Fax 029 2074 3838
Minicom 029 2074 3632

Parc Y Mynydd Bychan,
Caerdydd, CF14 4XW
Ffôn 029 2074 7747
Ffacs 029 20743838
Minicom 029 2074 3632

Tel: 029 20746986
Fax: 029 20745311
CAV_Research.Development@wales.nhs.uk

From: Professor C Fegan
R&D Director
R&D Office, 2nd Floor TB2
University Hospital of Wales
Cardiff
CF14 4XW

19 October 2015

Dr Samantha J Fisher
Stroke Rehabilitation Centre
University Hospital Llandough
Cardiff
CF62 2XX

Dear Dr Fisher

Cardiff and Vale UHB Ref and Study Title : 15/MEH/6264 : Positive Psychology Group For Stroke Survivors And Carers

IRAS Project ID: 172527

The above project was forwarded to Cardiff and Vale University Health Board R&D Office by the Health and Care Research Wales Permissions Coordinating Unit. A Governance Review has now been completed on the project.

Documents approved for use in this study are:

Document	Version	Date
Protocol	2	August 2015
Participant Consent Form: Contact by Researcher (Care)	2	14/08/2015
Participant Consent Form: Contact by Researcher (Stoke Survivor)	2	14/08/2015
Carer Consent Form: Group Member Participation	2	14/09/2015
Stroke Survivor Consent Form: Group Member Participation	2	14/08/2015
Participant Information Sheet: Carer Group Member	3	27/08/2015
Participant Information Sheet: Stroke Survivor Group Member	3	27/09/2015
NHS RD Form	4	Rec'd 30/07/15
SSI Form	4	Rec'd 30/07/15

Please accept this letter as confirmation of permission for the project to begin within this UHB.

May I take this opportunity to wish you success with the project and remind you that as Chief / Principal Investigator you are required to:

- Inform the R&D Office if this project has not opened within 12 months of the date of this letter. Failure to do so may invalidate R&D approval.
- Inform the Health and Care Research Wales Permissions Coordinating Unit and the UHB R&D Office if any external or additional funding is awarded for this project in the future
- Ensure that all study amendments are submitted to the Health and Care Research Wales Permissions Coordinating Unit by the Chief Investigator
- Ensure the Health and Care Research Wales Permissions Coordinating Unit is notified of the study's closure
- Ensure that the study is conducted in accordance with all relevant policies, procedures and legislation
- Provide information on the project to the UHB R&D Office as requested from time to time, to include participant recruitment figures

Yours sincerely,



Professor Christopher Fegan
R&D Director / Chair of the Cardiff and Vale Research Review Service (CaRRS)

CC R&D Lead Dr Neil Roberts
CC Anthony Williams, Finance
CC Mental Health Clinical Board, Assistant Head of Finance
CC Sponsor contact, Helen Falconer RACD
CC Academic supervisor, Dr Neil Frude
CC Academic supervisor/Chief Investigator, Professor Reg Morris

Appendix H: Amendment 2 approval.**East Midlands - Derby Research Ethics Committee**

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Tel: 020 7104 8096

11 January 2016

Miss Isla McMakin
Trainee Clinical Psychologist
Cardiff and Vale University Health Board
South Wales Clinical Psychology Doctoral Programme
11th Floor, Tower Building, 70 Park Place
Cardiff
CF10 3AT

Dear Miss McMakin

Study title:	The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.
REC reference:	15/EM/0361
Protocol number:	SPON 1442-15
Amendment number:	Amendment 2
Amendment date:	25 November 2015
IRAS project ID:	172527

The above amendment was reviewed at the meeting of the Sub-Committee held on 07 January 2016.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Notice of Substantial Amendment (non-CTIMP)	Amendment 2	25 November 2015
Participant information sheet (PIS) [Survivor Information Sheet]	4	25 November 2015
Participant information sheet (PIS) [Carer Information Sheet]	4	25 November 2015

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

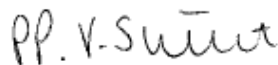
Statement of compliance

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.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/EM/0361:	Please quote this number on all correspondence
-------------	--

Yours sincerely



Mr Peter Korczak (Chair)
Chair

E-mail: NRESCommittee.EastMidlands-Derby@nhs.net

Enclosures: List of names and professions of members who took part in the review

*Copy to: Mr Thomas Fairman, Cardiff and Vale UHB
Ms Helen Falconer*



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WALES

Bwrdd Iechyd Prifysgol
Caerdydd a'r Fro
Cardiff and Vale
University Health Board

Ysbyty Athrofaol Cymru
University Hospital of Wales

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Caerdydd, CF14 4XW
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Ffacs 029 20743838
Minicom 029 2074 3632

Tel: 029 20746986
Fax: 029 20745311
CAV_Research.Development@wales.nhs.uk

From: Professor C Fegan
R&D Director
R&D Office, 2nd Floor TB2
University Hospital of Wales
Cardiff
CF14 4XW

05 February 2016

Dr Samantha J Fisher
Stroke Rehabilitation Centre
University Hospital Llandough
Cardiff
CF62 2XX

Dear Dr Fisher

Cardiff and Vale UHB ref, and study title: 15/MEH/6264 : Positive Psychology Group For Stroke Survivors And Carers

IRAS Project ID: 172527
REC Reference: 15/EM/0361
Amendment Number: AM02
Amendment Date: 25 November 2015

The above substantial amendment has been received by the Cardiff and Vale Research Review Service (CaRRS).

The documents reviewed were:-

Document	Version	Date
Favourable Opinion Letter from East Midlands – Derby Research Ethics Committee		11/01/2016
Notice of Substantial Amendment Form	AM02	25/11/2015
Participant Information Sheet: Carer Group Member	4	25/11/2015
Participant Information Sheet: Carer Group Member	4	25/11/2015

I can confirm that the above documentation has been favourably reviewed and that Cardiff and Vale UHB has no objection to the amendment.
This decision is subject to receipt of a favourable opinion from a Research Ethics Committee (REC).

May I take this opportunity to wish you success with the project and remind you that as Principal Investigator you are required to:

- Inform the R&D Office if any external or additional funding is awarded for this project in the future.
- Inform the Health and Care Research Wales Permissions Coordinating Unit / R&D Office of any further amendments relating to the protocol, including personnel changes and amendments to the actual or anticipated start / end dates.
- Complete any documentation sent to you by the R&D Office or University Research Innovation and Enterprise Services regarding this project.
- Adhere to the protocol as approved by the Research Ethics Committee.
- Ensure the research complies with the Data Protection Act 1998.

Yours sincerely,



Professor Christopher Fegan
R&D Director / Chair of the Cardiff and Vale Research Review Service (CaRRS)

CC R&D Lead Dr Neil Roberts
Chris Shaw, RIES, Cardiff University
Student: Miss Isla McMakin
Finance: Anthony Williams, University Hospital of Wales
Clinical Board Assistant Head of Finance: Joanne Wilson, University Hospital of Wales

The course consists of five sessions, we will discuss:

- Positive Emotions
- Engagement
- Relationships
- Establishing Meaning
- Accomplishments
- Optimism and Resilience

Where?

Day Hospital, University Hospital
Llandough.

When?

Thursday mornings between
10.20am-12.30pm.*

*Start date to be confirmed.

I'm interested – how do I book a place?

To find out more, or book a place please contact Julie or Samantha on the details provided below.

Contact Details

Stroke Rehabilitation Centre,
University Hospital Llandough,
Penarth,
Vale of Glamorgan,
CF62 2XX.

Telephone

Julie Wilcox: 02920 715996

Samantha Fisher: 02920 716827



**Positive Psychology group for people
and carers living with stroke**

**Achieving
Well-being after Stroke**



**A short course to teach you skills to help
boost your well-being.**

What is 'Achieving Well-being after Stroke' about?

This group has been created especially for people who feel distressed, anxious, sad, and or 'lost' after a stroke. The course is based on a novel approach called 'Positive Psychology'.

'Positive Psychology' is a skill-based approach that aims to teach you the skills to increase your experience of pleasure, positive emotions, engagement and meaning in your life. This approach focuses on wellbeing, positive characteristics and personal growth.

Well-being after Stroke

Strokes affect people in many ways and can cause physical, emotional and social challenges to the person and those closest to them.

The distress can often make people feel 'stuck' and unable to get on with their lives. Carers can have similar feelings and this course is also suitable for them.

'Achieving Well-being after Stroke' aims to help people move on with their lives, to teach them the skills to gain more enjoyment out of their daily lives, to strengthen their relationships, experience more positive emotions and to be more optimistic about their future.

What is the group like?

The group will meet once a week for 5 weeks. Each session is two hours long, including a tea break.

It is an educational group where you can learn simple skills that help to boost your well-being.

The group is open to anyone who has had a stroke or cared for somebody with a stroke.

If you attend, you can choose how much/little you want to say. If you just want to listen to others – that's ok, you will still get a lot out of it!



Appendix J: Consent to be contacted.

Centre Number: 275129

Study Number: 172527

Participant identification number:

Carer Consent Sheet: Consent to be Contacted by Researcher

Research Title: The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.

Name of Researcher: Isla McMakin

Please initial box

I confirm that I give consent to be contacted by the researcher (Isla McMakin) who will provide me with further information about the Positive Psychology group for stroke survivors and carers.

I understand that I am consenting to be contacted by the researcher not confirming my consent to participate in the research project.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without the medical care or legal rights of the person I am caring for (stroke survivor) being affected.

Name of Participant (Please Print)

.....

Signature of Participant/Verbal Consent Obtained.....

Date

Name of Person taking consent (Please Print)

.....

Signature Date.....

Centre Number: 275129

Study Number: 172527
Participant identification number:

Stroke Survivor Consent Sheet: Consent to be Contacted by Researcher

Research Title: The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.

Name of Researcher: Isla McMakin

Please initial box

I confirm that I give consent to be contacted by the researcher (Isla McMakin) who will provide me with further information about the Positive Psychology group for stroke survivors and carers.

I understand that I am consenting to be contacted by the researcher not confirming my consent to participate in the research project.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.

Name of Participant (Please Print)

.....

Signature of Participant/Verbal Consent Obtained.....

Date

Name of Person taking consent (Please Print)

.....

Signature Date.....

Appendix K: Study 1a Information sheets.

Participant Information Sheet: Carer Group Member

Study Title: A Positive Psychology Group for Stroke Survivors and Carers

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. The researcher is available to answer any questions you may have.

What is the Purpose of the Study?

The research will look at the use of a positive psychology model for improving psychological wellbeing for both survivors of stroke and carers of stroke survivors. Positive psychology can be described as the 'scientific study of optimal human functioning that aims to discover and promote the factors that allow individuals and their communities to thrive' (Seligman, 2000). Put simply, positive psychology focuses on 'building-what's-strong' rather than 'fixing-what's-wrong'. Some research has reported that positive psychology interventions can have a positive effect on the wellbeing of those with chronic illnesses.

As such, I am therefore looking to recruit individuals who have recently had a stroke or carers of those who have recently had a stroke to attend this group, run by myself and Dr Sam Fisher, Clinical Psychologist. This will involve five group sessions and will meet weekly at **Llandough Day Hospital, Penarth**. Unfortunately at present we cannot cover expenses incurred travelling to and from the group sessions.

What will happen to the results of the research study?

The data collected in the study will be reported in my PhD thesis; this will contribute towards my professional doctorate qualification in Clinical Psychology. It is hoped that the results of the research will be published in a scientific journal. You will be given the opportunity to receive a summary of the findings after the research is complete. You will not be identified in any report/publication related to this research.

Why Have I Been Invited?

You have been invited to participate because you are a carer for someone who has experienced a stroke. You can participate in this study if:

- You care for someone who has had a stroke within the past 5 years or are receiving on-going psychological support.
- You are over 18 years of age.

Do I have to take part?

It is up to you to decide to join the study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you or the person you care for receives.

What will happen to me if I take part?

If you decide to take part in this research, you will be randomly assigned to either a control group or to attend the positive psychology group. Please note, if you are assigned to the control group you will have an

opportunity to attend the positive group at a later date. You will be informed which group (control or positive psychology) you have been assigned to and given the dates to attend the group.

The group consists of 5-weekly group sessions that will cover a range of skills and strategies to improve your sense of wellbeing and quality of life post stroke (e.g. engagement in meaningful activities, maintaining positive relationships and establishing meaning and purpose in your life).

As part of the research, you will be required to complete several short questionnaires at three stages: the beginning, the end and 1-month post the end of the group sessions. I will be available to go through the questionnaires with you. These questionnaires should take a maximum of 30 minutes to complete on each occasion. If you agree to participate in this research, you can complete the questionnaires at home prior to the first session, at the venue of the group sessions or over the telephone with me at a convenient time.

What will I have to do?

If you decide to partake in this research, you will be invited to attend 5-group sessions for people who have had a stroke or carers of those who have had a stroke. You will be asked to complete questionnaires to evaluate the group.

If you decide to partake in this research and are assigned to the control group you do not need to attend any sessions at the Day Hospital, but, will be asked to complete a pack of several questionnaires at three time points. We will post a copy of these questionnaires to you or complete them over the telephone with me at a convenient time for you. You will have an opportunity to attend the positive psychology group at a later date, we will inform you of this date.

What are the benefits of this research?

Positive psychology interventions have been found to be helpful for chronic health conditions, including breast cancer, heart conditions and traumatic brain injury. To date no research has been published on the use of positive psychology interventions for stroke. I am hoping that this research can help us to evaluate the use of positive psychology groups in stroke services. This could potentially help to improve the services received by people affected by stroke.

What are the possible disadvantages and risk of taking part?

If you find completing the questionnaires or attending the groups raises any issues that are distressing you may wish to speak with either of the Clinical Psychologists working within the Stroke Rehabilitation Service; Dr Samantha Fisher on 02920 716827 or Dr Julie Fisher on 02920 715996. Alternatively, you may wish to contact the researcher, Isla McMakin on 02920 870587, or the project supervisor, Professor Reg Morris on 02920 870582.

You may find helpful information and insights in to issues experienced by other stroke survivors and/or carers on the stroke association website (<http://www.stroke.org.uk/>) or by contacting The Cardiff Stroke Association on 029 2052 4400.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the project supervisor who will do their best to answer your questions. You can contact Professor Reg Morris on 02920 870582 or at Reg.Morris@wales.nhs.uk .

If you remain unhappy and wish to complain formally you can do this through Cardiff University on 029 2087 9131 or at resgov@cardiff.ac.uk

Alternatively you may wish to speak to the Advocacy and Concerns Team (ACT) based in the Information Centre at University Hospital Llandough, they are available Tuesdays and Thursdays 16.00-18.00pm. If you wish to contact them outside of these hours please telephone 02920 744095 or 02920 743301.

Will my taking part in the study be kept confidential?

Your participation in this study will remain confidential. All information collected about you during the course of the research will be kept strictly anonymous. Any information about you that leaves the hospital/university will have your name and personal details removed so that you cannot be recognised.

Your answers to the questionnaires will be added, without your name or any information that could identify you, to the answers given by other people, and then the data for everybody who has taken part will be analyzed. All records of your name or personal information will be destroyed two years after the study has ended. The anonymous data will be stored electronically for 15 years before being deleted.

What will happen if I don't carry on with the study?

If you decide to withdraw from the study up to the point at which the data is anonymised, then all your personal details and individual data will be removed from the database. You are welcome to continue to attend the group sessions

Who is organising and funding the research?

Cardiff University is sponsoring this research, therefore, they may have access to the data after the anonymisation phase (but not personal details).

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the East Midlands-Derby Research Ethics Committee.

Further information and contact details.

For further information about this study, please contact Isla McMakin (Researcher) on 02920870582 or at isla.mcmakin@wales.nhs.uk

Participant Information Sheet: Stroke Survivor Group Member

Study Title: A Positive Psychology Group for Stroke Survivors and Carers

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. The researcher is available to answer any questions you may have.

What is the Purpose of the Study?

The research will look at the use of a positive psychology model for improving psychological wellbeing for both survivors of stroke and carers of stroke survivors. Positive psychology can be described as the 'scientific study of optimal human functioning that aims to discover and promote the factors that allow individuals and their communities to thrive' (Seligman, 2000). Put simply, positive psychology focuses on 'building-what's-strong' rather than 'fixing-what's-wrong'. Some research has reported that positive psychology interventions can have a positive effect on the wellbeing of those with chronic illnesses.

As such, I am therefore looking to recruit individuals who have recently had a stroke or carers of those who have recently had a stroke to attend this group, run by myself and Dr Sam Fisher, Clinical Psychologist. This will involve five group sessions and will meet weekly at **Llandough Day Hospital, Penarth**. Unfortunately at present we cannot cover expenses incurred travelling to and from the group sessions.

What will happen to the results of the research study?

The data collected in the study will be reported in my PhD thesis; this will contribute towards my professional doctorate qualification in Clinical Psychology. It is hoped that the results of the research will be published in a scientific journal. You will be given the opportunity to receive a summary of the findings after the research is complete. You will not be identified in any report/publication related to this research.

Why Have I Been Invited?

You have been invited to participate because you have experienced a stroke. You can participate in this study if:

You have experienced a stroke within the past 5 years or are receiving on-going psychological support.

You are over 18 years of age.

Do I have to take part?

It is up to you to decide to join the study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you receive.

What will happen to me if I take part?

If you decide to take part in this research, you will be randomly assigned to either a control group or to attend the positive psychology group. Please note, if you are assigned to the control group you will have an opportunity to attend the positive group at a later date. You will be informed which group (control or positive psychology) you have been assigned to and given the dates to attend the group.

The group consists of 5-weekly group sessions that will cover a range of skills and strategies to improve your sense of wellbeing and quality of life post stroke (e.g. engagement in meaningful activities, maintaining positive relationships and establishing meaning and purpose in your life).

As part of the research, you will be required to complete several short questionnaires at three stages: the beginning, the end and 1-month post the end of the group sessions. I will be available to go through the questionnaires with you. These questionnaires should take a maximum of 30 minutes to complete on each occasion. If you agree to participate in this research, you can complete the questionnaires at home prior to the first session, at the venue of the group sessions or over the telephone with me at a convenient time.

If you decide to take part, you will be asked whether you consent to the researcher accessing your medical notes and data. If you provide consent, the researcher will only access your medical notes for information about your stroke.

What will I have to do?

If you decide to partake in this research, you will be invited to attend 5-group sessions for people who have had a stroke or carers of those who have had a stroke. You will be asked to complete questionnaires to evaluate the group.

If you decide to partake in this research and are assigned to the **control group** you do not need to attend any sessions at the Day Hospital, but, will be asked to complete a pack of several questionnaires at three time points. We will post a copy of these questionnaires to you or complete them over the telephone with me at a convenient time for you. You will have an opportunity to attend the positive psychology group at a later date, we will inform you of this date.

What are the benefits of this research?

Positive psychology interventions have been found to be helpful for chronic health conditions, including breast cancer, heart conditions and traumatic brain injury. To date no research has been published on the use of positive psychology interventions for stroke. I am hoping that this research can help us to evaluate the use of positive psychology groups in stroke services. This could potentially help to improve the services received by people affected by stroke.

What are the possible disadvantages and risk of taking part?

If you find completing the questionnaires or attending the groups raises any issues that are distressing you may wish to speak with either of the Clinical Psychologists working within the Stroke Rehabilitation Service; Dr Samantha Fisher on 02920 716827 or Dr Julie Fisher on 02920 715996. Alternatively, you may wish to contact the contact the researcher, Isla McMakin on 02920 870587, or the project supervisor, Professor Reg Morris on 02920 870582.

You may find helpful information and insights in to issues experienced by other stroke survivors and or carers on the stroke association website (<http://www.stroke.org.uk/>) or by contacting The Cardiff Stroke Association on 029 2052 4400.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the project supervisor who will do their best to answer your questions. You can contact Professor Reg Morris on 02920 870582 or at Reg.Morris@wales.nhs.uk

If you remain unhappy and wish to complain formally you can do this through Cardiff University on 029 2087 9131 or at resgov@cardiff.ac.uk

Alternatively you may wish to speak to the Advocacy and Concerns Team (ACT) based in the Information Centre at University Hospital Llandough, they are available Tuesdays and Thursdays 16.00-18.00pm. If you wish to contact them outside of these hours please telephone 02920 744095 or 02920 743301.

Will my taking part in the study be kept confidential?

Your participation in this study will remain confidential. All information collected about you during the course of the research will be kept strictly anonymous. Any information about you that leaves the hospital/university will have your name and personal details removed so that you cannot be recognised. Your answers to the questionnaires will be added, without your name or any information that could identify you, to the answers given by other people, and then the data for everybody who has taken part will be analyzed. All records of your name or personal information will be destroyed two years after the study has ended. The anonymous data will be stored electronically for 15 years before being deleted.

What will happen if I don't carry on with the study?

If you decide to withdraw from the study up to the point at which the data is anonymised, then all your personal details and individual data will be removed from the database. You are welcome to continue to attend the group sessions.

Who is organising and funding the research?

Cardiff University is sponsoring this research, therefore, they may have access to the data after the anonymisation phase (but not personal details).

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the East Midlands –Derby Research Ethics Committee.

Further information and contact details.

For further information about this study, please contact Isla McMakin (Researcher) on 02920870582 or at isla.mcmakin@wales.nhs.uk

Appendix L: Study 1b Information sheets.

Participant Information Sheet: Carer Group Member

Study Title: A Positive Psychology Group for Stroke Survivors and Carers

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. The researcher is available to answer any questions you may have.

What is the Purpose of the Study?

The research will look at the use of a positive psychology model for improving psychological wellbeing for both survivors of stroke and carers of stroke survivors. Positive psychology can be described as the ‘scientific study of optimal human functioning that aims to discover and promote the factors that allow individuals and their communities to thrive’ (Seligman, 2000). Put simply, positive psychology focuses on ‘building-what’s-strong’ rather than ‘fixing-what’s-wrong’. Some research has reported that positive psychology interventions can have a positive effect on the wellbeing of those with chronic illnesses.

As such, I am therefore looking to recruit individuals who have recently had a stroke or carers of those who have recently had a stroke to attend this group, run by myself and Dr Sam Fisher, Clinical Psychologist. This will involve five group sessions and will meet weekly at **Llandough Day Hospital, Penarth**. Unfortunately at present we cannot cover expenses incurred travelling to and from the group sessions.

What will happen to the results of the research study?

The data collected in the study will be reported in my PhD thesis; this will contribute towards my professional doctorate qualification in Clinical Psychology. It is hoped that the results of the research will be published in a scientific journal. You will be given the opportunity to receive a summary of the findings after the research is complete. You will not be identified in any report/publication related to this research.

Why Have I Been Invited?

You have been invited to participate because you are a carer for someone who has experienced a stroke. You can participate in this study if:

You care for someone who has had a stroke within the past 5 years or are receiving on-going psychological support.

You are over 18 years of age.

Do I have to take part?

It is up to you to decide to join the study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you or the person you care for receives.

What will happen to me if I take part?

If you decide to take part in this research, you will be invited to attend the positive psychology group. The group consists of 5-weekly group sessions that will cover a range of skills and strategies to improve your sense of wellbeing and quality of life (e.g. engagement in meaningful activities, maintaining positive relationships and establishing meaning and purpose in your life).

As part of the research, you will be required to complete several short questionnaires at three stages: the beginning, the end and 1-month post the end of the group sessions. These questionnaires should take a

maximum of 30 minutes to complete on each occasion. I will be available to go through the questionnaires with you. In addition, you will be asked to complete two short questionnaires about your wellbeing and progress at the start of each of the five sessions, these should take no longer 5 minutes to complete.

If you agree to participate in this research, you can complete the questionnaires at the venue of the group sessions or over the telephone with me at a time convenient for you.

What will I have to do?

If you decide to partake in this research, you will be invited to attend 5-group sessions for people who have had a stroke or carers of those who have had a stroke. You will be asked to complete questionnaires to evaluate the group.

What are the benefits of this research?

Positive psychology interventions have been found to be helpful for chronic health conditions, including breast cancer, heart conditions and traumatic brain injury. To date no research has been published on the use of positive psychology interventions for stroke. I am hoping that this research can help us to evaluate the use of positive psychology groups in stroke services. This could potentially help to improve the services received by people affected by stroke.

What are the possible disadvantages and risk of taking part?

If you find completing the questionnaires or attending the groups raises any issues that are distressing you may wish to speak with either of the Clinical Psychologists working within the Stroke Rehabilitation Service; Dr Samantha Fisher on 02920 716827 or Dr Julie Fisher on 02920 715996. Alternatively, you may wish to contact the contact the researcher, Isla McMakin on 02920 870587, or the project supervisor, Professor Reg Morris on 02920 870582.

You may find helpful information and insights in to issues experienced by other stroke survivors and or carers on the stroke association website (<http://www.stroke.org.uk/>) or by contacting The Cardiff Stroke Association on 029 2052 4400.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the project supervisor who will do their best to answer your questions. You can contact Professor Reg Morris on 02920 870582 or at Reg.Morris@wales.nhs.uk .

If you remain unhappy and wish to complain formally you can do this through Cardiff University on 029 2087 9131 or at resgov@cardiff.ac.uk

Alternatively you may wish to speak to the Advocacy and Concerns Team (ACT) based in the Information Centre at University Hospital Llandough, they are available Tuesdays and Thursdays 16.00-18.00pm. If you wish to contact them outside of these hours please telephone 02920 744095 or 02920 743301.

Will my taking part in the study be kept confidential?

Your participation in this study will remain confidential. All information collected about you during the course of the research will be kept strictly anonymous. Any information about you that leaves the hospital/university will have your name and personal details removed so that you cannot be recognised.

Your answers to the questionnaires will be added, without your name or any information that could identify you, to the answers given by other people, and then the data for everybody who has taken part will be analyzed. All records of your name or personal information will be destroyed two years after the study has ended. The anonymous data will be stored electronically for 15 years before being deleted.

What will happen if I don't carry on with the study?

If you decide to withdraw from the study up to the point at which the data is anonymised, then all your personal details and individual data will be removed from the database. You are welcome to continue to attend the group sessions

Who is organising and funding the research?

Cardiff University is sponsoring this research, therefore, they may have access to the data after the anonymisation phase (but not personal details).

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the East Midlands-Derby Research Ethics Committee.

Further information and contact details.

For further information about this study, please contact Isla McMakin (Researcher) on 02920870582 or at isla.mcmakin@wales.nhs.uk

Participant Information Sheet: Stroke Survivor Group Member

Study Title: A Positive Psychology Group for Stroke Survivors and Carers

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. The researcher is available to answer any questions you may have.

What is the Purpose of the Study?

The research will look at the use of a positive psychology model for improving psychological wellbeing for both survivors of stroke and carers of stroke survivors. Positive psychology can be described as the 'scientific study of optimal human functioning that aims to discover and promote the factors that allow individuals and their communities to thrive' (Seligman, 2000). Put simply, positive psychology focuses on 'building-what's-strong' rather than 'fixing-what's-wrong'. Some research has reported that positive psychology interventions can have a positive effect on the wellbeing of those with chronic illnesses.

As such, I am therefore looking to recruit individuals who have recently had a stroke or carers of those who have recently had a stroke to attend this group, run by myself and Dr Sam Fisher, Clinical Psychologist. This will involve five group sessions and will meet weekly at **Llandough Day Hospital, Penarth**. Unfortunately at present we cannot cover expenses incurred travelling to and from the group sessions.

What will happen to the results of the research study?

The data collected in the study will be reported in my PhD thesis; this will contribute towards my professional doctorate qualification in Clinical Psychology. It is hoped that the results of the research will be published in a scientific journal. You will be given the opportunity to receive a summary of the findings after the research is complete. You will not be identified in any report/publication related to this research.

Why Have I Been Invited?

You have been invited to participate because you have experienced a stroke. You can participate in this study if:

You have experienced a stroke within the past 5 years or are receiving on-going psychological support.

You are over 18 years of age.

Do I have to take part?

It is up to you to decide to join the study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you receive.

What will happen to me if I take part?

If you decide to take part in this research, you will be invited to attend the positive psychology group. The group consists of 5-weekly group sessions that will cover a range of skills and strategies to improve your sense of wellbeing and quality of life post stroke (e.g. engagement in meaningful activities, maintaining positive relationships and establishing meaning and purpose in your life).

As part of the research, you will be required to complete several short questionnaires at three stages: the beginning, the end and 1-month post the end of the group sessions. These questionnaires should take a maximum of 30 minutes to complete on each occasion. I will be available to go through the questionnaires

with you. In addition, you will be asked to complete two short questionnaires about your wellbeing and progress at the start of each of the five sessions, these should take no longer 5 minutes to complete.

If you agree to participate in this research, you can complete the questionnaires at the venue of the group sessions or over the telephone with me at a time convenient for you.

If you decide to take part, you will be asked whether you consent to the researcher accessing your medical notes and data. If you provide consent, the researcher will only access your medical notes for information about your stroke.

What will I have to do?

If you decide to partake in this research, you will be invited to attend 5-group sessions for people who have had a stroke or carers of those who have had a stroke. You will be asked to complete questionnaires to evaluate the group.

What are the benefits of this research?

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Who is organising and funding the research?

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Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the East Midlands –Derby Research Ethics Committee.

Further information and contact details.

For further information about this study, please contact Isla McMakin (Researcher) on 02920870582 or at isla.mcmakin@wales.nhs.uk



Appendix M: Consent to participate.

Centre Number: 275129

Study Number: 172527

Participant identification number:

Carer Consent Sheet: Group Member Participation

Research Title: The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.

Name of Researcher: Isla McMakin

Please initial box

I confirm that I have read and understand the ‘*Participant Information Sheet: Carer Member*’ (Version 1) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without the medical care or legal rights of the person I am caring for (stroke survivor) being affected.

I agree to take part in the above study.

Name of Participant (Please Print)

.....

Signature of Participant

Date

Name of Person Taking Consent (Please Print)

.....

Signature of Researcher.....

Date.....

OPTIONAL:

I **would** like a summary of the findings of this study sent to my email **or** postal address below:

(If you **would not** like to receive a summary of the findings, please leave this section blank)

Email address:

Or

Postal Address (including post code)

.....
.....

.....
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.....
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.....

Centre Number: 275129
Study Number: 172527
Participant identification number:

Stroke Survivor Consent Sheet: Group Member Participation

Research Title: The Effectiveness of Positive Psychology Groups for Stroke Survivors and Carers.

Name of Researcher: Isla McMakin

Please initial box

I confirm that I have read and understand the ‘*Participant Information Sheet: Stroke Survivor Member*’ (Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.

I understand that relevant sections of my medical notes and data collected during the study will be looked at by the researcher, Cardiff University staff and may be looked at by regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this evaluation study. I give permission for these individuals to have access to my records.

I agree to take part in the above study.

Name of Participant (Please Print)

Signature of Participant
 Date

Name of Person taking consent (Please Print)

 Signature
 Date.....

OPTIONAL:

I **would** like a summary of the findings of this study sent to my email **or** postal address below:

(If you **would not** like to receive a summary of the findings, please leave this section blank)

Email address:

Or

Postal Address (including post code)

.....
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Appendix N: Questionnaire pack.



Carers' Questionnaire Pack

Instructions:

This questionnaire should take no longer than 30 minutes to complete.

Questionnaires will be **anonymous**. Therefore, please do not write your name on the questionnaire.

Please try to answer all the questions even if you are unsure about some of them. However, it is your right to stop completing the questionnaire or leave out certain questions at any time should you wish to.

Demographic Information Sheet for Carer

The following information will be used anonymously in the study. Please answer as many questions as possible. However, you do not have to answer anything you don't want to. Thank-you.

Please give your age: _____ years old

Please indicate your gender (Please tick the box which applies to you)

Male Female

Please indicate your ethnicity (Please tick which ever box/boxes applies to you)

British	<input type="checkbox"/>	Caribbean	<input type="checkbox"/>
Irish	<input type="checkbox"/>	African	<input type="checkbox"/>
Other White	<input type="checkbox"/>	Any other Black	<input type="checkbox"/>
White and Black Caribbean	<input type="checkbox"/>	Chinese	<input type="checkbox"/>
White and Black African	<input type="checkbox"/>	Other ethnic group	<input type="checkbox"/>
White and Asian	<input type="checkbox"/>		
Any other mixed	<input type="checkbox"/>		
Indian	<input type="checkbox"/>		
Pakistani	<input type="checkbox"/>		
Bangladeshi	<input type="checkbox"/>		
Any other Asian	<input type="checkbox"/>		

Please indicate your occupation (Please tick the box which applies to you)

Retired Please state your previous job title _____

In employment Please state your current job title _____

Unemployed If relevant, please state previous job title _____

Please indicate your living circumstances (Please tick the box which applies to you)

Living with a stroke survivor

Not living with stroke survivor

Please indicate your relationship to the stroke survivor (Please tick the box which applies to you)

Spouse

Offspring

Professional carer

Other (please specify) _____

How much time do you normally spend with him/her each week? _____ hours.

When did the person you care for have their last stroke? _____ (date)

Was this the first time they experienced a stroke? (Please tick the box which applies to you)

Yes No

What type of stroke did they have? (if known) _____ (ischaemic or haemorrhagic)

Where was their stroke? (if known) _____

How has the stroke affected them?:

Has it affected their ability to communicate with others? (Please tick the box which applies to you)

Not at all

Mildly

Severe

Do they experience memory difficulties? (Please tick the box which applies to you)

Not at all

Mildly

Severely

Have their relationships with other been affected? (Please tick the box which applies to you)

Not at all

Somewhat

Most definitely

Are you currently feeling ... (Please tick the box which applies to you for both feelings categories)

Low in mood or depressed

Never

Sometimes

Often

Anxious or worried

Never

Sometimes

Other

In the past two years, have you been treated for depression or anxiety?

(Please tick the box which applies to you)

Yes

No

Educational experience

Age Left School: _____

Highest qualification:

O-Level / GCSE

A-Level

Diploma or Certificate

Degree

Higher Degree

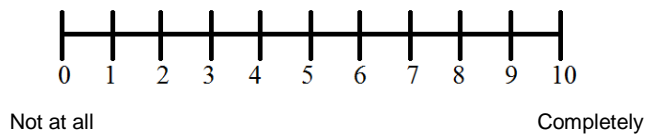
PART 2: Specific questions about life since the stroke.

A) PERMA Profiler

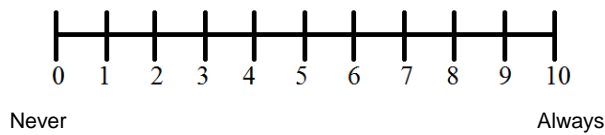
Please read each of the following questions and then select the point on the scale that you feel best describes you.

All questions must be completed for this questionnaire to be scored.

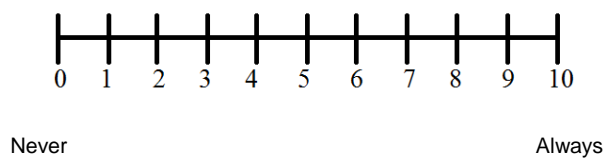
1. In general, to what extent do you lead a purposeful and meaningful life?



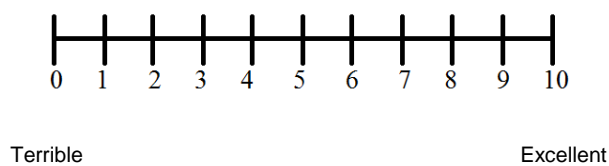
2. How much of the time do you feel you are making progress towards accomplishing your goals?



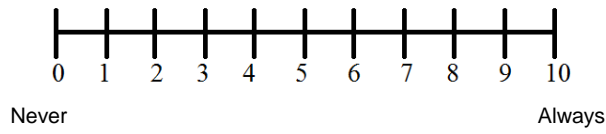
3. How often do you become absorbed in what you are doing?



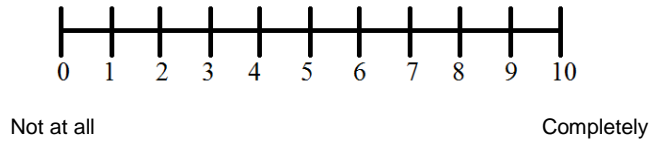
4. In general, how would you say your health is?



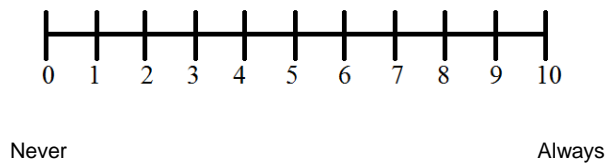
5. In general, how often do you feel joyful?



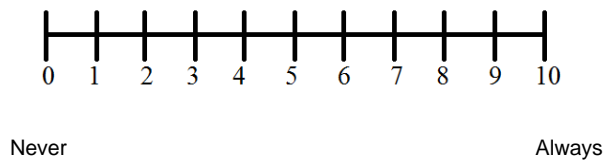
6. To what extent do you receive help and support from others when you need it?



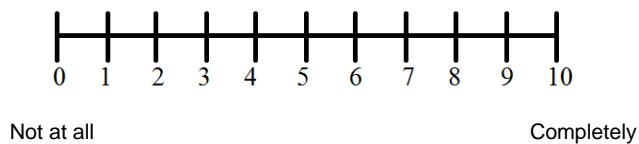
7. In general, how often do you feel anxious?



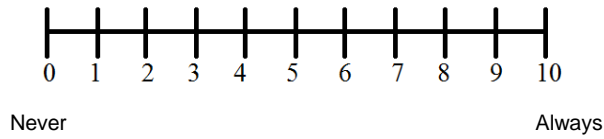
8. How often do you achieve the important goals you have set for yourself?



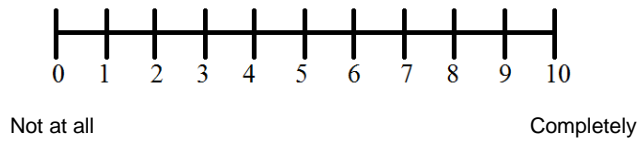
9. In general, to what extent do you feel that what you do in your life is valuable and worthwhile?



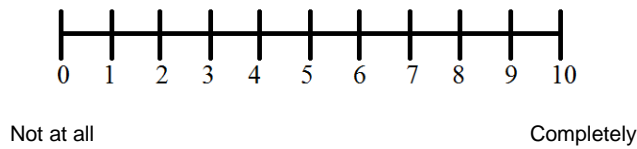
10. In general, how often do you feel positive?



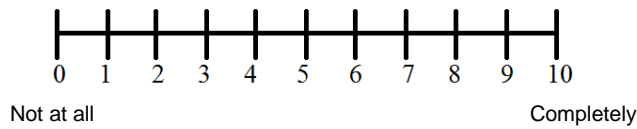
11. In general, to what extent do you feel excited and interested in things?



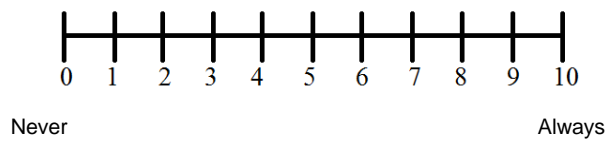
12. How lonely do you feel in your daily life?



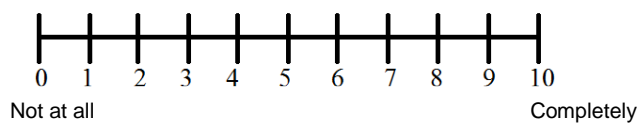
13. How satisfied are you with your current physical health?



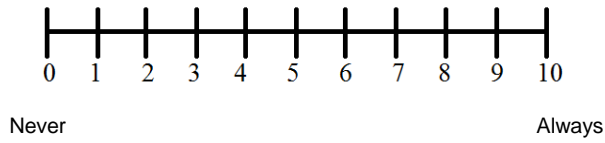
14. In general, how often do you feel angry?



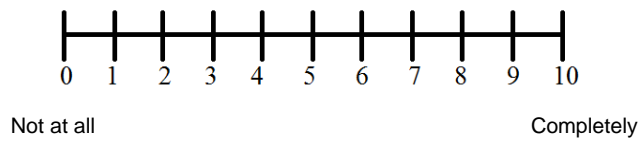
15. To what extent have you been feeling loved?



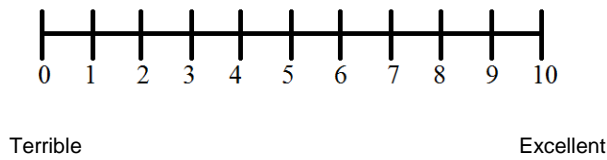
16. How often are you able to handle your responsibilities?



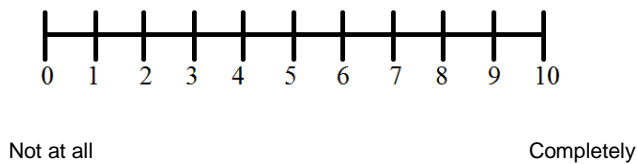
17. To what extent do you generally feel you have a sense of direction in your life?



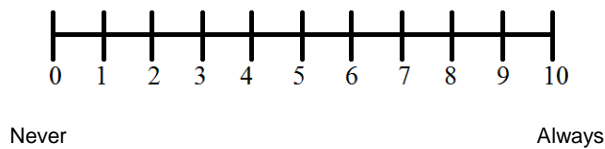
18. Compared to others of your same age and sex, how is your health?



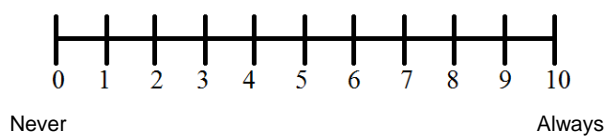
19. How satisfied are you with your personal relationship?



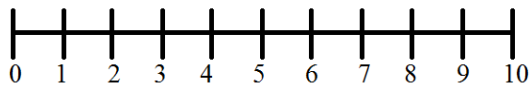
20. In general, how often do you feel sad?



21. How often do you lose track of time while doing something you enjoy?



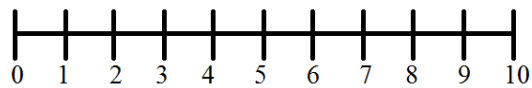
22. In general, to what extent do you feel contented?



Not at all

Completely

23. Taking all things together, how happy would you say you are?



Not at all

Completely

B) Frenchay Activities Index

In the last three months how often have you undertaken:

1. Preparing main meals?

- Never
- Less than once per week
- 1-2 times per week
- Most days

2. Washing up?

- Never
- Less than once per week
- 1-2 times per week
- Most days

3. Washing clothes?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

4. Light housework?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

5. Heavy housework?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

6. Local shopping?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

7. Social outings?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

8. Walking outside more than 15 minutes?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least week

9. Actively pursuing hobby?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

10. Driving a car/going on a bus?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

In the last six months how often have you undertaken:

11. Travel outings/car rides?

- Never
- 1-2 times in 6 months
- 3-12 times in 6 months
- At least fortnightly

12. Gardening?

- Never
- Light
- Moderate
- All necessary

13. Household/car maintenance/DIY?

- Never
- Light
- Moderate
- All necessary

14. Reading books?

- None
- 1 in 6 months
- Less than 1 each fortnight
- More than 1 in a fortnight

15. Gainful work?

None

Up to 10 hours/week

10-30 hours/week

Over 30 hours/week

C) Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the answer that is closest to how you have been feeling in the past week.
Don't take too long over your replies: your immediate response is best.

1. I feel tense or 'wound up':

- | | |
|---------------------------------|--------------------------|
| Most of the time | <input type="checkbox"/> |
| A lot of the time | <input type="checkbox"/> |
| From time to time, occasionally | <input type="checkbox"/> |
| Not at all | <input type="checkbox"/> |

2. I still enjoy the things I used to enjoy:

- | | |
|--------------------|--------------------------|
| Definitely as much | <input type="checkbox"/> |
| Not quite as much | <input type="checkbox"/> |
| Only a little | <input type="checkbox"/> |
| Hardly at all | <input type="checkbox"/> |

3. I get a sort of frightened feeling as if something awful is about to happen:

- | | |
|-----------------------------------|--------------------------|
| Very definitely and quite badly | <input type="checkbox"/> |
| Yes, but not too badly | <input type="checkbox"/> |
| A little, but it doesn't worry me | <input type="checkbox"/> |
| Not at all | <input type="checkbox"/> |

4. I can laugh and see the funny side of things:

- | | |
|----------------------------|--------------------------|
| As much as I always could | <input type="checkbox"/> |
| Not quite so much now | <input type="checkbox"/> |
| Definitely not so much now | <input type="checkbox"/> |
| Not at all | <input type="checkbox"/> |

5. Worrying thoughts go through my mind:

- | | |
|--------------------------------------|--------------------------|
| A great deal of the time | <input type="checkbox"/> |
| A lot of the time | <input type="checkbox"/> |
| From time to time, but not too often | <input type="checkbox"/> |
| Only occasionally | <input type="checkbox"/> |

6. I feel cheerful

- | | |
|------------------|--------------------------|
| Not at all | <input type="checkbox"/> |
| Not often | <input type="checkbox"/> |
| Sometimes | <input type="checkbox"/> |
| Most of the time | <input type="checkbox"/> |

7. I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

8. I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

9. I get a sort of frightened feeling like 'butterflies' in the stomach:

- Not at all
- Occasionally
- Quite often
- Very often

10. I have lost interest in my appearance:

- Definitely
- I don't take as much care as I should
- I may not take quite as much care
- I take just as much care as ever

11. I feel restless as I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

12. I look forward with enjoyment to things:

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

13. I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

14. I can enjoy a good book or radio or TV programme:

Often
Sometimes
Not often
Very seldom

D) Warwick-Edinburgh Mental Well-being Scale- Short Form (SWEMWBS)

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

1. I've been feeling optimistic about the future:

- | | |
|------------------|--------------------------|
| None of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> |
| Often | <input type="checkbox"/> |
| All of the time | <input type="checkbox"/> |

2. I've been feeling useful:

- | | |
|------------------|--------------------------|
| None of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> |
| Often | <input type="checkbox"/> |
| All of the time | <input type="checkbox"/> |

3. I've been feeling relaxed:

- | | |
|------------------|--------------------------|
| None of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> |
| Often | <input type="checkbox"/> |
| All of the time | <input type="checkbox"/> |

4. I've been dealing with problems well:

- | | |
|------------------|--------------------------|
| None of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> |
| Often | <input type="checkbox"/> |
| All of the time | <input type="checkbox"/> |

5. I've been thinking clearly:

- | | |
|------------------|--------------------------|
| None of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> |
| Often | <input type="checkbox"/> |
| All of the time | <input type="checkbox"/> |

6. I've been feeling close to other people:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

7. I've been able to make my own mind up about things:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

Thank you for completing this questionnaire pack.

Stroke Survivor Questionnaire Pack

Instructions:

This questionnaire should take no longer than 30 minutes to complete.

Questionnaires will be **anonymous**. Therefore, please do not write your name on the questionnaire.

Please try to answer all the questions even if you are unsure about some of them. However, it is your right to stop completing the questionnaire or leave out certain questions at any time should you wish to.

Demographic Information Sheet for Stroke Survivors

The following information will be used anonymously in the study. Please answer as many questions as possible. However, you do not have to answer anything you don't want to. Thank-you.

Please give your age: _____ years old

Please indicate your gender (Please tick the box which applies to you)

Male **Female**

Please indicate your ethnicity (Please tick which ever box/boxes applies to you)

British	<input type="checkbox"/>	Caribbean	<input type="checkbox"/>
Irish	<input type="checkbox"/>	African	<input type="checkbox"/>
Other White	<input type="checkbox"/>	Any other Black	<input type="checkbox"/>
White and Black Caribbean	<input type="checkbox"/>	Chinese	<input type="checkbox"/>
White and Black African	<input type="checkbox"/>	Other ethnic group	<input type="checkbox"/>
White and Asian	<input type="checkbox"/>		
Any other mixed	<input type="checkbox"/>		
Indian	<input type="checkbox"/>		
Pakistani	<input type="checkbox"/>		
Bangladeshi	<input type="checkbox"/>		
Any other Asian	<input type="checkbox"/>		

Please indicate your occupation (Please tick the box which applies to you)

Retired Please state your previous job title _____

In employment Please state your current job title _____

Unemployed If relevant, please state previous job title _____

Please indicate your living circumstances (Please tick the box which applies to you)

Living with a carer

Living with someone who is not a carer

Living alone

When did you have your last stroke? _____ (date)

Was this the first time you experienced a stroke? (Please tick the box which applies to you)

Yes **No**

What type of stroke did you have? (if known) _____ (ischaemic or haemorrhagic)

Where was your stroke? (if known) _____

How has the stroke affected you?:

Has your ability to communicate with others been affected? (Please tick the box which applies to you)

Not at all

Mildly

Severe

Do you experience memory difficulties? (Please tick the box which applies to you)

Not at all

Mildly

Severely

Have your relationships with those living with you, or those closest to you, been affected? (Please tick the box which applies to you)

Not at all	<input type="checkbox"/>
Somewhat	<input type="checkbox"/>
Most definitely	<input type="checkbox"/>

Are you currently feeling ... (Please tick the box which applies to you for both feelings categories)

Low in mood or depressed		Anxious or worried	
Never	<input type="checkbox"/>	Never	<input type="checkbox"/>
Sometimes	<input type="checkbox"/>	Sometimes	<input type="checkbox"/>
Often	<input type="checkbox"/>	Other	<input type="checkbox"/>

In the past two years, have you been treated for depression or anxiety?

(Please tick the box which applies to you)

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
------------	--------------------------	-----------	--------------------------

Educational experience

Age Left School: _____

Highest qualification:

O-Level / GCSE	<input type="checkbox"/>
A-Level	<input type="checkbox"/>
Diploma or Certificate	<input type="checkbox"/>
Degree	<input type="checkbox"/>
Higher Degree	<input type="checkbox"/>

B) Frenchay Activities Index

In the last three months how often have you undertaken:

3.4.2.1 Preparing main meals?

- Never
- Less than once per week
- 1-2 times per week
- Most days

3.4.2.2 Washing up?

- Never
- Less than once per week
- 1-2 times per week
- Most days

3.4.2.3 Washing clothes?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

3.4.2.4 Light housework?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

3.4.2.5 Heavy housework?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

3.4.2.6 Local shopping?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

7. Social outings?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

8. Walking outside more than 15 minutes?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least week

9. Actively pursuing hobby?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

10. Driving a car/going on a bus?

- Never
- 1-2 times in 3 months
- 3-12 times in 3 months
- At least weekly

In the last six months how often have you undertaken:

11. Travel outings/car rides?

- Never
- 1-2 times in 6 months
- 3-12 times in 6 months
- At least fortnightly

12. Gardening?

- Never
- Light
- Moderate
- All necessary

13. Household/car maintenance/DIY?

- Never
- Light
- Moderate
- All necessary

14. Reading books?

- None
- 1 in 6 months
- Less than 1 each fortnight
- More than 1 in a fortnight

15. Gainful work?

None

Up to 10 hours/week

10-30 hours/week

Over 30 hours/week

C) Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the answer that is closest to how you have been feeling in the past week.
Don't take too long over your replies: your immediate response is best.

1. I feel tense or 'wound up':

- Most of the time
- A lot of the time
- From time to time, occasionally
- Not at all

2. I still enjoy the things I used to enjoy:

- Definitely as much
- Not quite as much
- Only a little
- Hardly at all

3. I get a sort of frightened feeling as if something awful is about to happen:

- Very definitely and quite badly
- Yes, but not too badly
- A little, but it doesn't worry me
- Not at all

4. I can laugh and see the funny side of things:

- As much as I always could
- Not quite so much now
- Definitely not so much now
- Not at all

5. Worrying thoughts go through my mind:

- A great deal of the time
- A lot of the time
- From time to time, but not too often
- Only occasionally

6. I feel cheerful

- Not at all
- Not often
- Sometimes
- Most of the time

7. I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

8. I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

9. I get a sort of frightened feeling like 'butterflies' in the stomach:

- Not at all
- Occasionally
- Quite often
- Very often

10. I have lost interest in my appearance:

- Definitely
- I don't take as much care as I should
- I may not take quite as much care
- I take just as much care as ever

11. I feel restless as I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

12. I look forward with enjoyment to things:

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

13. I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

14. I can enjoy a good book or radio or TV programme:

- Often
- Sometimes
- Not often
- Very seldom

D) Warwick-Edinburgh Mental Well-being Scale- Short Form
(SWEMWBS)

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

1. I've been feeling optimistic about the future:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

2. I've been feeling useful:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

3. I've been feeling relaxed:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

4. I've been dealing with problems well:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

5. I've been thinking clearly:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

6. I've been feeling close to other people:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

7. I've been able to make my own mind up about things:

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

Thank you for completing this questionnaire pack.

‘Achieving Well-being’

Positive Psychology Group: Debrief Letter

Dear

Thank you for participating in this research. The aim of this study was to evaluate the use of a positive psychology well-being group for both stroke survivors and carers.

We hope that the answers you provided will:

- develop our knowledge of how people are affected after stroke.
- increase our understanding of whether a positive psychology model can help to improving wellbeing after stroke.

Hopefully, this will identify the types of support that are helpful and lead to improvements in community stroke services.

Please be assured that the data you provided will be kept strictly confidential and will be stored anonymously. Your consent form will be kept separately in a locked cabinet at the South Wales Doctoral Course in Clinical Psychology, Cardiff University. You are free to withdraw your information without needing to provide a reason. If you have any concerns about the research, please feel free to contact the researchers (contact details are at the bottom of the letter). If you remain unhappy and wish to complain formally, you can do this by contacting Cardiff University on 02920 879131 or resgov@cardiff.ac.uk.

I will be very happy to send you a summary of the findings from the study. You may have indicated this on the consent form, but if not please feel free to contact me to request this information.

Thank you again for your participation and please do not hesitate to contact me with any questions.

Yours truly

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Appendix P: Summary of session attendance (including those who did not provide complete data set)

Group 1 Intervention (Study 1a)

	Session 1	Session 2	Session 3	Session 4	Session 5
Survivors	14	11	8	9	8
Carers	4	3	2	2	2
Total	18	14	10	11	10

Group 2 Intervention (Study 1b)

	Session 1	Session 2	Session 3	Session 4	Session 5
Survivors	14	10	11	13	11
Carers	3	1	4	3	1
Total	17	11	15	16	12

Appendix Q: Summary of group intervention (study 1a and study 1b).

The changes made to the content and structure of the intervention for the *Group 2 Intervention* are highlighted in red.

Format of sessions

At least one clinician (including the researcher) and an assistant psychologist facilitated each of the group intervention sessions. Each session lasted two hours and were held on a weekly basis for five consecutive weeks. To account for possible fatigue or cognitive difficulties (e.g. attentional difficulties) participants were given a twenty minute break (including refreshments) mid-way through the group sessions, during which the facilitators ‘checked-in’ with each group member.

The group sessions were facilitated in a group therapy room at the local day hospital. This venue was chosen as it was an adequately sized therapeutic space that could be easily accessed by those using a wheelchair, it had disability parking spaces available close to the entrance, was a short walk from the main car parking area and had a comfortable waiting area for those who arrived early or were accessing ambulance transport.

Participants were given additional time at the start of first session and at the end of the last group session to complete the questionnaire pack. Additional support in completing these was available for those who requested it. **Within study 1b, participants were given time at the start of each session to complete the weekly SWEMWBS measure.**

Development of the content of the sessions

Prior to facilitating the group the researcher attended a ten week evening course on Positive Psychology and its application. The researcher and specialist stroke clinician (Clinical Psychologist) co-produced the content of the group sessions and the supporting materials using a collection of Positive Psychology resources available within the literature. The content of the sessions was focused around the PERMA model of wellbeing plus resilience. Each session focused on an aspect of multidimensional wellbeing: positive emotions, engagement, relationships, meaning and accomplishments. A PowerPoint presentation was used to deliver the content of the sessions, in addition, group discussions and group exercises featured throughout each session. Summary handouts containing the main points from each session and the ‘optional home activity’ were provided at the end of each session. **Following feedback from participants in the group 1 intervention, a copy of the full presentation was given to group 2 participants at the end of the intervention.**

Role of the Facilitator

The roles of the facilitators were to set up the room for each session, greet participants upon arrival at the group, provide refreshments and deliver the content of the sessions. Within the session the facilitators encouraged group discussions, steered discussions back to topic when necessary, monitored participants' emotional wellbeing, summarised key points made by group members, continuously monitored participants' engagement with the content and made sure participants were following the content of the sessions, repeated and elaborated content when required and ensured each member had an equal opportunity to contribute to the discussions, if they wanted to. It was also the facilitators' role to ensure participants felt safe when sharing their experiences and that a non-judgemental stance was held by all group members. 'Ground rules' including the importance of respect and confidentiality were discussed in the first group session.

Group Members Participation

Group members were all encouraged to contribute to group discussions, interact with others in the group and to share their experiences of and reflections on the content being delivered. No participants were 'forced' to contribute to the sessions, all were informed that they were under no obligation to do so and could 'just' listen to others within the group.

Session Structure

Each session began with a brief 'check-in' and a 'gratitude round' or '**sparkle moment**', in which each group member and facilitator fed back something they were grateful for or a positive experience they had during the past week. This was followed by a brief summary of the content of the previous session. The main content of the session was delivered using the PowerPoint presentation. Throughout the presentation the facilitators encouraged group discussions, asked group members for examples from their own lives and led group activities. At the end of each session the facilitators introduced the 'optional home activity', summarised the session content, answered any questions, gave group members the session summary handout and briefly introduced the topic for the following session.

Session Content

Session 1: Introduction to Wellbeing and Happiness

The first session comprised of an overview of the aims of the group, the structure of the group and the session plans and an introduction to wellbeing and happiness. An overview of the content of the session is as follows:

- 'Getting to know each other' activity: group members asked to describe their top three strengths to the person sat next to them and then feedback to the group.
- Introduction to Positive Psychology- what it is, why study it.

- Different types of happiness (eudaimonic and hedonic)
- Evolution and emotions
- Benefits of positive emotions
- Emotional wellbeing and physical health
- Introduction to learning the skills to promote wellbeing
- Models of wellbeing (PERMA model of wellbeing and The Wellbeing Daisy)
- Introduction to ‘Loving Kindness’ – each participants given audio CD of exercise.
- Introduction to ‘optional home activities’ – complete own PERMA wheel.

Session 2: Positive Emotions

Session two focused on positive emotions, the benefits of them and how we can increase them. An overview of the content of the session is as follows:

- Check-in
- ‘Sparkle moment’ round
- Recap previous session
- Examples of positive emotions
- How positive emotions ‘help’ us
- Re-visit The Wellbeing Daisy
- Relationship between positive emotions and negative emotions
- Barriers to wellbeing
- Ways of increasing positive emotions
- Introduction of the ‘Happy App’ (not used in *Group 2 Intervention*)
- Random Acts of Kindness- ask group members for the experience of this
- Introduction to savouring and activity (savouring a past moment, place, person, pet using all of your senses)
- Introduction to gratitude and a gratitude activity (one thing grateful for today)
- Why gratitude is important
- Introduction to ‘optional home activities’- daily ‘three good things’ diary.

Session 3: Engagement, Flow and Relationships

Session three focused on the importance of engagement and relationships in the maintenance of our psychological wellbeing. An overview of the content of the session is as follows:

- Check-in
- ‘Gratitude round’ or ‘sparkle moment’
- Recap of previous session
- Engagement and flow
- What is needed to experience flow
- Examples of flow activities
- Flow activity – group members ask the person next to them what flow activities they have done that week and feedback to the group
- Benefits of flow
- Importance of relationships
- ‘Knowing me, knowing you’ exercise
- Relationship positivity ration
- Increasing positive relationships and communication
- Introduction to ‘optional home activities’- Values in Action Inventory [VIA] strengths questionnaire.

Session 4: Meaning, Accomplishments and Strengths

Session four focused on the importance of having a sense of meaning, celebrating accomplishments and recognising and using our strengths. An overview of the content of the session is as follows:

- Check-in
- ‘Gratitude round’ or ‘sparkle moment’
- Recap of previous session
- Meaning and purpose
- Why is having meaning important?
- Finding meaning
- Accomplishments
- **Recognising accomplishments activity- each feedback greatest accomplishments to the group.**
- Increasing your sense of achievement
- Character strengths
- Strengths activity- when are you at your best, what are you doing, etc?
- Benefits of playing to your strengths
- Activity- feedback re VIA, share your top strengths and how you have used them **and how you can use them in a different way.**
- Introduction to ‘optional home activities’- record use of top five strengths during the week and creating an ‘accomplishment portfolio’ (record of your strengths in each decade since birth).

Session 5: Optimism and Resilience

Session five focused on the role of optimism and the importance of developing resilience. An overview of the content of the session is as follows:

- Check-in
- ‘Gratitude round’ or ‘sparkle moment’
- Recap of previous session
- Review ‘optional home activities’
- What is optimism and why it is important
- Reframing
- **Activity – in pairs reframe set of negative scenarios presented**
- What is resilience and why is it important
- Activity- think about a challenge, set back or disappointment and how you successfully overcame it, feedback to group.
- Learning from others (‘resilience hero’) – **share details of your ‘resilience hero’**
- The way we think affects our health
- Summary of sessions
- Skills to practice
- Advantages of enhanced wellbeing
- Recap of PERMA model
- ‘First aid kit’
- Questions and feedback.

Appendix R: Focus group demographics and semi-structured interview.

Attendee demographics:

Speaker Coding Number	Gender	Survivor/Carer	Sessions Attended
S2	Male	Survivor	5
S3	Male	Survivor	5
S4	Female	Survivor	4
S5	Female	Survivor	5
S6	Female	Survivor	5
S7	Male	Survivor	5
S8	Male	Survivor	4
S9	Female	Carer	4
S10	Male	Survivor	4
S11	Female	Carer	4

*S1 = Group facilitator

Semi-structured interview:

We want to get your feedback on how you've experienced the group and any suggested changes you have, please be as honest about your experience, good and bad, it will help us to make sure we are delivering the best possible care and support to future stroke survivors and carers.

General feedback:

First of all we wanted to get a feel for how you have experienced the group.

- What did you like about the group sessions
- Was there anything you didn't like about the group sessions?
- Have there been any parts of the group that you've found particularly helpful or useful?
- What was most useful, the things we discussed in the group, or meeting with other people who had had a stroke?
- Have you noticed any changes in yourself and or others since you attended the group?

Session Specifics:

- Was the group what you expected?
- Did you think there were enough sessions?
- Were the sessions long enough/too long?

- How did you find the venue?
- Was there enough discussion time during the sessions?
- Was there too much/not enough interaction with the group members/facilitators?
- Was the content of the sessions easy to follow?
- How did you find the exercises we did in the sessions, gratitude rounds etc.?
- Did you have a chance to do any of the optional home activities?
- Are you still practicing any of the skills you learnt in the sessions (if so what?)
- Could we do anything to encourage you to keep on practicing the things we suggested?
- Was there anything that you really enjoyed in the sessions?
- Was there anything that really made you think?
- Is there anything that could be done differently/anything you'd change about the group?
- How soon after a stroke do you think this group would be useful?
- Did you find it helpful to have carers there as well?
- How did you find it being here with your partner?

Appendix S: Focus group transcript sample.

S1 Speaker = Group facilitator

Timecode	Speaker	Transcript
00:00:01	S1	Okay. It's recording now. So, we just want to get your honest feedback about how you've experienced the group. It's really important for us to have feedback, both positive and negative so that we can make changes to our future groups. So first of all, we want to see...get a general sense of how you've experienced our groups. The first question is: what did you like about the group sessions, if anything? What...yeah. So what did you like?
00:00:36	S2	I think camaraderie. All of us getting together and have a good chat and a chin-wag, teamwork. It's not the sort of thing you enjoy on a questionnaire. It's something you got to be in a group together and experience each and other...each person's input. Because it's surprising, some of the people who don't necessarily talk a lot get drawn into it then. Because not everybody's that confident. So, that's good.
00:01:11	S1	So it's a bit the camaraderie for you?
00:01:13	S2	Yeah. Yeah. Yeah.
00:01:13	S1	Yeah. Right. Thank you.
00:01:15	S3	It's a very friendly group. We all seem to get on well. We all bounce off each other. Like H said, it helps people that don't speak so...I'm shy, I am. (Laughter) Normally, till I get to know people, I'm shy. I am joking. (Laughter) But I notice with E , E 's very quiet. You don't know normally hear E but E spoken up more in this group and he says things. So, it is a very friendly group. We all go on really well and we enjoyed all the sessions. You two were very good, even when you were bad. (Laughter)
00:01:58	S4	I thought the whole...sorry.
00:01:58	S5	I think it's nice to listen to other people's experiences as well, empathise with them and learn from them as well.
00:02:07	S4	I think the whole course was good and you presented it, really, really well. And it makes you stop and think about things in a different way and in a less negative way. As far as people sharing things, I think that's so important because sometimes you think, I'm the only person who's feeling like that or experiencing that and then you realise that you're not...then you give us the expertise to be able to turn around the negative things. I mentioned yesterday that I know I've got problems with my memory now which seem to be getting worse. I had some memory testing done and I...and Julie did it, she was a bit worried to how I would take it if it if my memory wasn't so good. But I've found that I have managed to turn that from a negative into a positive because now I know I have problems with my recall and recollection memory, I can cope with it now and I can...I make notes and I have to write reminders down, but at least now I know what's happening.
00:03:20	S6	And then remember not to lose them.
00:03:22	S4	Yeah. But the way that you put things over is like trying to turn the negative things. Yes, I do have a problem with my memory, however, I can manage that by doing this, this and this which I think came out...to me, it came out a lot in the group that you said is....
00:03:39	S6	I find if you're looking for something and you're stressing about it, you won't find it. And then all

		of the sudden, you will be sitting there, the light bulb will come on, I put it so and so. And so, but if you're stressing about it, it's like, I'll change to bed and then, oh God, and I got to get that quilt on. If it takes you an hour to go and get it on. So it takes you an hour... don't fuss about it, we got all day. And then, if I go in and Oh Gof I got to do the bed before I go and feel stressed out or I think I got to put that quilt cover on, every corner will go in the one corner, it wont work. If I go in and think I can't do it now, and go down the shop or make dinner, so and so and I'll come back to it. When I go back to it, I can put it on like this, oh, that was easy. But if I get myself stressed, everything, you know.
00:04:29	S2	And then what's good to see is even the professionals use post-its. (Laughs)
00:04:35	S6	We all made everyone made reminders.
00:04:36	S1	You should see...yeah. You should see my house is covered them.
00:04:38	S7	So there's no problem in writing something down, in fact, one of the best ways of stress management is, if you...I can liken it back to a chap who used to work with me. He was a general manager of the factory, really nice guy...tough northerner, took the world on his shoulders and he wasn't sleeping. And one of the rare occasions, I got to speak to him on a proper one to one he said to me, [inaudible 00:05:06] in that and I said George, you know, I said, there's something you got to do but I'll tell you about it when I get back tonight. When I got back in the night, I get a very simple notepad and I pinched the pen out the stationary cupboard and I said, look George, this has got to go beside your bed, mate. Now, when you go to bed to sleep tonight, that thing that's on your mind, you write it down in a bit of paper on your notepad. And I say, anything else that comes into your head, you write on the notepad. And before the end of the week, he was sleeping like a baby. But what he couldn't realise, what he can't understand was the fact that if you have something in your head, your brain is constantly reminding you. As you start to nod off, it says, 'Oi, don't forget, we got to do so and so tomorrow.' And...you know. So, this is a vicious cycle. So you're trying to sleep, you're trying to relax and just so you get to that point of relaxing, the brain knocks you again. By writing it down, your brain says, 'Oh, I don't need to worry about until tomorrow.' And it does work.
00:06:19	S1	Yeah. Thank you.
00:06:21	S7	If you got a lot of things to do, one of the things they say is you prioritise your things. Like a traffic light system, red, green, amber. Yeah. Confusing sequence I know. But if something is red it's got to be done. So if you got to pay your credit card bill by tomorrow, that you put a red mark of number one next to it. If you got to pay your credit card, the 20 th of April, that's a very much a green thing. It's good to write it down but it's not something you're going to really worry about.
00:07:01	S1	Can I...can I interrupt here? Because I...that's...it's very helpful to hear that, I'm just mindful of refocusing the group on questions. (Laughter) I don't mean to be rude in doing that but just refocusing people. Because that is a really helpful strategies but if I can refocus us back to the questions, if that's okay. Don't need to apologise, it's just me trying to be focused. So can I ask if there's anything about the group sessions that you didn't like and be brutally honest, what...was there anything about the content, how it's delivered, where it was? Anything about the group....
00:07:38	S6	Transport for me.
00:07:39	S1	Transport. Mm-hmm.
00:07:40	S6	And I understand that I'm not the only one relying on NHS transport but you got to be ready for them then they don't turn up...I understand I'm not the only one but it is so frustrating. Because if I know I'm going somewhere, I'm going to be picked up at 9:00, I don't want them to be there 9:55. I got to be there by 10:00 and I don't like...before this happened, I didn't like being late anyway. So if I got a train for 9:00, I'd be on the station 8:30 to make sure I'm there for that train.

Appendix T: Dependent variable descriptive statistics prior to adjustment of outliers.

Study 1a

Measure	Phase	Intervention Group (n=10)	Control Group (n=10)	Combined (n=20)
		Mean (SD)	Mean (SD)	Mean (SD)
PERMA-P (Overall)	Pre	6.24 (1.93)	7.03 (1.2)	6.63 (1.62)
	Post	5.85 (1.96)	7.55 (1.02)	6.70 (1.75)
	Follow-up	6.38(1.62)	7.51(.91)	6.95(1.40)
FAI (Total)	Pre	25.9 (8.28)	26.5 (10.71)	26.20 (9.32)
	Post	27.7 (7.62)	25.6 (10.97)	25.80 (10.38)
	Follow-up	28.90 (6.98)	25.80(10.37)	27.35 (8.76)
HADS_A (Anxiety total)	Pre	7.70(6.02)	7.20 (3.33)	7.45 (4.74)
	Post	6.80(4.66)	8.70(6.06)	9.60(5.15)
	Follow-up	7.20(4.37)	9.60(5.15)	8.40(4.80)
HADS_D (Depression total)	Pre	6.30(4.55)	5.40(2.46)	5.85(3.59)
	Post	5.50(5.10)	5.90(3.73)	5.70(4.35)
	Follow-up	5.70(3.53)	6.50(2.99)	6.10(3.21)
HADS_T (Overall total)	Pre	14.00(9.67)	12.60(4.69)	13.30(7.43)
	Post	12.30(8.77)	14.60(8.87)	13.45(8.67)
	Follow-up	12.30(6.20)	15.60(4.88)	13.95(5.69)
SWEMWBS	Pre	24.20(5.98)	26.00(3.23)	25.10(4.77)
	Post	24.30(5.70)	23.90(3.41)	24.10(4.58)
	Follow-up	25.60(4.48)	25.10(2.42)	25.35(3.51)

Study 1b

Measure	Phase	Intervention Group (n=17)
		Mean (SD)
PERMA-P (Overall)	Pre	6.25 (1.58)
	Post	6.94(1.41)
	Follow-up	7.14 (1.41)
FAI (Total)	Pre	28.21 (8.46)
	Post	30.29 (7.61)
	Follow-up	31.00 (8.18)
HADS_T (Overall total)	Pre	13.71 (8.35)
	Post	13.29 (7.42)
	Follow-up	11.93 (6.72)
SWEMWBS (Total)	Pre	23.50 (4.20)
	Post	25.00 (4.59)
	Follow-up	25.79 (4.73)