PSYCHOLOGICAL RESILIENCE TO SUICIDAL THOUGHTS AND BEHAVIOURS IN PEOPLE WITH A DIAGNOSIS OF SCHIZOPHRENIA OR NON-AFFECTIVE PSYCHOSIS

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LIST OF COMMON ABBREVIATIONS

3-ST – Three-Step Theory

APA – American Psychiatric Association

BHS – Beck Hopelessness Scale

BSS – Beck Scale for Suicidal Ideation

CBT – Cognitive Behavioural Therapy

CDC – Centers for Disease Control and Prevention

CD-RISC – Connor-Davidson Resilience Scale

CDS – Calgary Depression Scale for Schizophrenia

CoP – Cry of Pain Model

DSM – Diagnostic and Statistical Manual of Mental Disorders

ICD – International Classification of Diseases

IMV – Integrated Motivational-Volitional Model

IPTS – Interpersonal-Psychological Theory of Suicidal Behaviour

NICE – National Institute for Health and Care Excellence

PANSS – Positive and Negative Syndrome Scale

PSYRATS – Psychotic Symptoms Rating Scales

PTSD – Post-Traumatic Stress Disorder

RAS – Resilience Appraisals Scale

SAMS – Schematic Appraisals Model of Suicide

WHO – World Health Organization

ABSTRACT

Candidate: Kamelia Harris

A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in the Faculty of Biology, Medicine and Health in October 2020.

Thesis title: Psychological resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis.

Suicide fatalities are a major health care concern globally. People with severe mental health problems, such as schizophrenia, are at a substantially greater risk of death by suicide. Between 4% and 13% of people with a diagnosis of schizophrenia die by suicide. Suicidal ideation and behaviours are even more frequent. Studies have reported suicidal ideation rates of around 28% and a lifetime prevalence of suicide attempts between 20% and 40%. However, not everyone at risk of suicide death thinks about, attempts, or dies by suicide. Some people appear resilient to the impact of suicide-precipitating experiences on their wellbeing. Therefore, it is important to identify how people are resilient to the impact of these experiences, in order to inform effective suicide prevention interventions. The overarching aim of this thesis was to investigate the roles of psychological resilience and psychosis on suicidal thoughts and behaviours.

A mixed-methods approach was used to address this aim, incorporating four empirical studies. First, a systematic literature review identified psychological factors that confer resilience to suicidal thoughts and behaviours in people experiencing non-affective psychosis, including i. perceived social support, ii. holding religious and spiritual beliefs, iii. identifying reasons for living, and iv. perceived positive personal skills and attributes (Chapter 3).

Second, a qualitative study examined individual perspectives of factors that contribute to resilience to suicidal thoughts and behaviours. Resilience was described as a dynamic, effortful process that developed over time, through the experiences of mental health problems, the interrelated suicidal experiences, and their deleterious impact on individual wellbeing. A multi-componential resilience model was developed based on the data (Chapter 4).

Third, another qualitative study examined the perceived impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with these experiences. Hallucinations and delusions were reported to have a central role in the development of suicidal experiences. A practical heuristic was proposed that described a vicious cycle between immense psychological distress due to psychosis and changes in behaviours and self-appraisals, whereby suicidality was perceived as the only way to escape distress. Certain types of delusions were sometimes perceived to reduce the intensity of suicidal experiences and psychological distress (Chapter 5).

Fourth, a longitudinal study incorporating a three-month follow-up period investigated the moderating roles of psychosis, distress associated with psychosis and resilience in the relationships between key suicide precursors (i.e., defeat/entrapment, and hopelessness) and suicidal thoughts and behaviours. Baseline defeat/entrapment predicted suicidal thoughts and behaviours over time. The strength of this relationship was amplified by the severity of delusions, hallucinations and the associated distress at baseline, when psychological resilience was at its lowest (Chapter 6).

The results of this thesis highlight the importance of nurturing resilience and managing psychosis and the associated psychological distress as a means of improving wellbeing and reducing suicidal experiences in people with schizophrenia diagnoses or non-affective psychosis. The theoretical and clinical implications of these findings are discussed throughout this thesis and suggestions are made for clinicians conducting assessments and formulations. A key step in research is to identify resilience mechanisms and incorporate them into interventions aiming to nurture resilience to suicidal thoughts and behaviours and reduce suicide-related experiences in people with a diagnosis of schizophrenia or non-affective psychosis.

DECLARATION

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

ACKNOWLEDGEMENTS

PREFACE

This section presents an overview of the structure (see Figure 1.0) and research aims of this thesis. This thesis comprises seven chapters, four of which report empirical studies. Chapter 1 describes, defines and critically evaluates the literature pertaining to the main concepts investigated in this thesis, including suicidal experiences, schizophrenia and psychological resilience. Chapter 2 describes, discusses and evaluates the methodological approaches used in the empirical chapters of this thesis. Chapters 3 to 6 present the methods and findings from each empirical study. Chapter 7 includes a general overview and discussion of the results of the empirical studies in relation to the extant literature, the implications of the findings for research and clinical practice, and directions for future research.

The overarching aim of this thesis was to investigate psychological resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or related non-affective psychosis. This overarching aim was addressed through four empirical studies (Chapters 3 to 6).

The first study (Chapter 3) addressed the following research questions: i. Are there psychological factors which confer resilience to suicidal thoughts and behaviours, and if so, what is the nature of this relationship? and ii. Is there evidence that any psychological factors which confer resilience may, instead, amplify or not affect suicidal thoughts and behaviours? Chapter 3 of this thesis provides the first ever systematic review of the literature describing factors which confer resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis.

The second empirical study (Chapter 4) addressed the following research question: What factors contribute to psychological resilience to suicidal experiences? To achieve this, the perspectives of individuals with a diagnosis of schizophrenia or non-affective psychosis were examined using qualitative methods.

The third empirical study (Chapter 5) addressed the following research question: What is the perceived impact of psychosis on suicidal thoughts and behaviours? This was achieved using qualitative methods to explore the experiences of people with a diagnosis of schizophrenia or non-affective psychosis.

The fourth and final empirical study (Chapter 6) addressed the following research questions: i. Would psychosis and the associated distress amplify the pathways between defeat, entrapment, hopelessness and suicidal thoughts and behaviours? and ii. Would psychological resilience weaken those pathways? The relationships between these constructs were probed using quantitative methods. This was the first longitudinal study of the moderating role of psychological resilience and psychosis in the relationships between main suicide precursors and suicidal thoughts and behaviours in a sample of people with schizophrenia diagnosis or non-affective psychosis.

The current thesis is presented in alternative format, offered by the University of Manchester. Each empirical chapter (Chapters 3 to 6) is written in a format appropriate for publication in an academic, peer-reviewed journal. An alternative format was chosen for this thesis to maximise the potential for publication during the PhD project. The chapters of this thesis have either been published or under review in peer-reviewed journals. The empirical study presented in Chapter 3 has been published in *Psychology and Psychotherapy: Theory, Research and Practice.* The empirical study presented in Chapter 4 has been published in the *British Journal of Psychiatry Open.* The empirical study presented in Chapter 5 has been published in *Schizophrenia Bulletin Open.* The empirical study presented in Chapter 6 is under review in *Schizophrenia Bulletin.*

The author of this thesis conducted the research presented in this thesis in collaboration with other individuals who require recognition. The author's supervisory team, Dr Patricia Gooding, Dr Sarah Peters and Professor Gillian Haddock, contributed to the design and write-up of the empirical studies and provided input on theoretical and clinical aspects of the research. Therefore, they are recognised as co-authors. Recruitment of participants into the studies and all analyses was undertaken solely by the author of this thesis (Chapters 4 to 6). The thesis write-up was solely the work of the author, with others (i.e., Dr Patricia Gooding, Dr Sarah Peters, Professor Gillian Haddock) providing feedback on drafts.
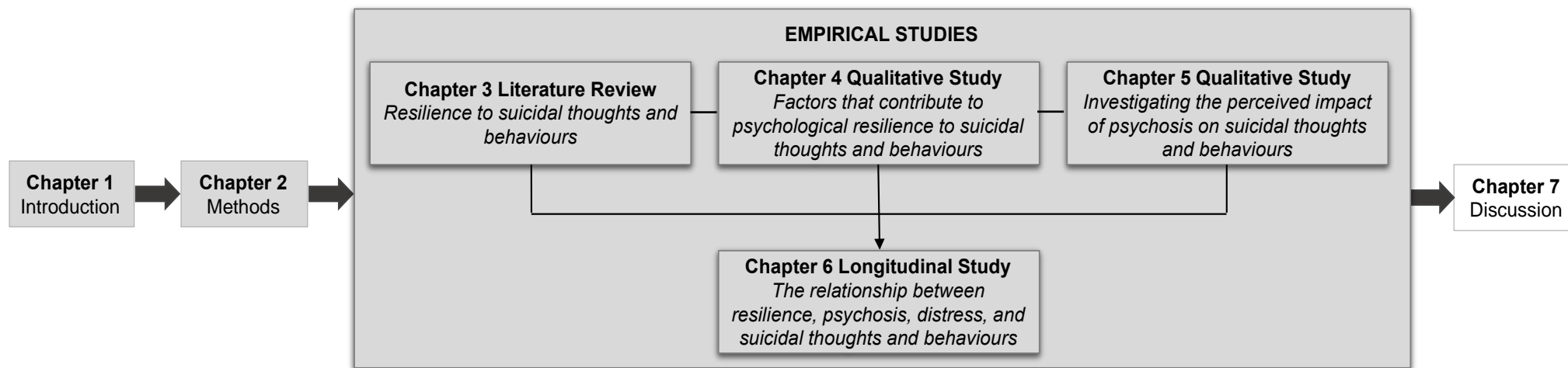
Figure 1.0. Structure of the thesis

Personal Reflections

Reflexivity is important in research because of the various ways in which the researcher can influence data collection, analysis and reporting. Given the interpretive nature of the qualitative approach adopted in part of this thesis (i.e., Chapters 4 and 5), critical reflection on the research process and the roles that myself as a researcher and my supervisors played in it was essential.

From the beginning of my PhD training, I was aware of the impact that my previous training and experiences in suicide and mental health research could have on the entire research process and the outcomes and conclusions of this thesis. I recognised that my training in conducting clinical interviews and assessments and previous research experience as a research associate and a research assistant could provide valuable knowledge and facilitate data collection and analysis but was also aware of the need to remain open to alternative views and experiences I might encounter. For example, since I was not raised in the UK, I was mindful of how my cultural background could be perceived by participants in my ability to assimilate their experiences. Throughout the research process, I attempted to put aside my assumptions and cultural influences, as these could undoubtedly influence the research process, and acknowledge the values and beliefs that different cultures hold.

Having experts in understanding and managing mental health problems (GH), developing theories about suicide (PG) and qualitative methods (SP) as part of the supervisory team brought different perspectives on the research process. During data collection, I had the privilege to listen to people's stories about suicide and mental health which often felt very emotional and poignant. I admired the ways people managed to cope with and remain positive through such difficult experiences. Throughout the process of data collection, I had the opportunity to talk to my supervisory team if I needed emotional support. During data analysis, I worked closely with my supervisors to discuss the research findings, personal influences and theoretical underpinnings of my work. This was crucial in ensuring rigour and high quality of research.

Overall, the research process helped me further develop my knowledge and skills as an independent researcher. It also allowed me to gain insight into different phenomena through self-reflection. Importantly, it made me value the importance of mental wellbeing and appreciate the profound impact of mental health difficulties on individuals' lives and the people around them.

CHAPTER 1

1. Introduction

1.1. Overview

This introductory chapter provides descriptions, definitions and critical evaluation of the main concepts investigated in this thesis, including the complexity and prevalence of suicidal experiences, schizophrenia and non-affective psychosis, and conceptual issues surrounding psychological resilience in the context of schizophrenia and suicide. This chapter concludes with an overview of the research questions addressed in each empirical chapter of this thesis (Chapters 3 to 6).

1.2. Defining Suicidal Experiences

Definitions of suicide death vary between countries. For example, in the UK, suicide is defined as "death from intentional self-harm for persons aged 10 and over, and death caused by injury or poisoning where the intent was undetermined for those aged 15 and over" (Office for National Statistics, 2019, p. 3). In the USA, a suicide fatality is defined as "death caused by self-directed injurious behaviour with intent to die as a result of the behaviour" (National Institute of Mental Health, 2019). Although nomenclature detailing suicide-related terminology has been proposed, different terms are frequently used to describe similar phenomena (Brenner et al., 2011; Crosby, Ortega, & Melanson, 2011; De Leo, Burgis, Bertolote, Kerkjof, & Bille-Brahe, 2006). For example, across countries there are different operational criteria for discerning between death by suicide (e.g., a suicide note indicating intent or self-infliction) and accidental death (Appleby, Turnbull, Kapur, Gunnel, & Hawton, 2019; Tollefsen et al., 2015). In some countries attempted suicide is still considered a crime (e.g., Bangladesh, Cyprus, Malaysia; Mishara & Weisstub, 2016). The lack of uniform definitions of suicide death may impede accurate classification of suicide deaths, cross-national comparisons and interpretations of suicide data.

Suicidal experiences and mental health problems are proposed to be inextricably linked (Nordentoft, Mortensen, & Pedersen, 2011). However, research suggests that suicidal experiences should be considered a distinct entity which arises from a combination of early life experiences, personality, genetic, and neuroanatomical predisposing factors (Courtet, 2010). Suicidal experiences can be viewed on a continuum, ranging from suicidal thoughts, and progressing to

concrete suicide plans, attempts, and death (Baca-Garcia et al., 2011; Claes et al., 2009; Johnson et al., 2008; Taylor, Wood, Gooding, & Tarrier, 2010b). However, this view has been challenged, as suicidal experiences can develop non-linearly (Sveticic & De Leo, 2012). Consideration of suicidal experiences as dynamic phenomena, incorporating suicidal thoughts, behaviours, urges, plans has been posited (Sveticic & De Leo, 2012). This view is plausible, considering the range of predisposing factors and events which can affect the relationships between the different suicidal experiences. Suicidal ideation relates to thinking about, considering, or planning suicide death (Crosby et al., 2011). A suicide attempt is defined as "self-inflicted, potentially injurious behaviour with a nonfatal outcome for which there is evidence (either explicit or implicit) of intent to die" (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007; p. 273). In this thesis, suicidality (i.e., suicidal ideation, suicide attempts; Tietbohl-Santos et al., 2019), suicidal thoughts, urges, plans, and behaviours are referred to as "suicidal experiences".

Suicidal experiences can be multifaceted (Barzilay & Apter, 2014; Conner, 2003) and may not necessarily develop in a linear fashion (Rogers, 2003). For example, experience sampling studies have found considerable fluctuations in suicidal experiences, as well as positive correlations between fluctuations in mood and the frequency and severity of suicidal experiences in individuals (Kleiman et al., 2017; Palmier-Claus et al., 2013; Palmier-Claus, Taylor, Gooding, Dunn, & Lewis, 2012). The transition between the different suicidal experiences is not well understood due to the sparsity of epidemiological, longitudinal, micro-longitudinal and qualitative longitudinal research (Sveticic & De Leo, 2012). Investigating suicidal processes within a nonlinear, dynamic theoretical framework has been proposed which may provide a better understanding of suicidality and perspectives on clinically relevant issues relating to the prediction of suicidal experiences (Bryan & Rudd, 2017; Fartacek, Schiepek, Kunrath, Fartacek, & Ploderl, 2016; Rogers, 2003; Schiepek et al., 2011). Efforts to develop dynamic, theory-driven approaches capturing the psychological mechanisms underpinning the development of suicidal thoughts and behaviours, based on individuals' experiences, are necessary steps in suicide research.

1.3. The Epidemiology of Suicide

Approximately 800,000 people around the world die by suicide every year (World Health Organization (WHO), 2019b). Suicide is the tenth leading cause of death worldwide (WHO, 2019b). In Europe, there were 10.91 recorded suicide deaths per 100,000 people in 2015 (Eurostat, 2018). In the UK, there were 10.10 suicide deaths per 100,000 people in 2017 (Simms & Scowcroft,

2018). The rate of suicide fatalities is higher in the USA where 14 suicide deaths per 100,000 people were reported in 2017 (Centers for Disease Control and Prevention (CDC), 2019). The disparity in suicide death rates may be due to the varied operationalisations of suicide deaths across countries (Appleby, et al., 2019; Tollefsen et al., 2015).

Whilst global suicide death rates are high, experiencing suicidal thoughts and behaviours is even more frequent. In 2013 in the USA, 3.9% of people aged over 18 years reported experiencing suicidal thoughts, 1.1% had made suicide plans, and 0.6% had attempted suicide (CDC, 2015). In the UK, 20.6% of adults reported experiencing suicidal thoughts at some point in their lives and 6.7% had attempted suicide (McManus et al., 2016). These figures indicate that suicide-related experiences are a major concern for public health and call for prompt preventative actions.

Numerous epidemiological risk factors have been identified that contribute to suicide deaths, including being male, unemployed, older, living in poverty, having a physical illness, previous suicide attempts and instances of self-harm, substance use disorders and the presence of mental health problems, such as schizophrenia (Chan et al., 2016; Hor & Taylor, 2010; McLean, Maxwell, Platt, Harris, & Jepson, 2008; Shah, Bhat, MacKenzie, & Koen, 2008). The limitation of epidemiological risk factor approaches is that they do not provide a comprehensive understanding of the psychological mechanisms underpinning suicidal thoughts, behaviours and deaths (Bolton, Gooding, Kapur, Barrowclough, & Tarrier, 2007; Laursen, Nordentoft, & Mortensen, 2014; Nock et al., 2008b). Moreover, whilst knowledge of risk factors can inform of future suicide death, categorising suicide risk has resulted in high number of false positives and missed fatalities (Large, 2018). Therefore, this approach is ineffective in preventing suicide deaths (Large, 2018). In order to better understand and effectively assess suicide risk, it may be more useful to focus on contemporaneous factors and the needs of the individual, rather than probabilistic notions of suicide risk.

In addition to epidemiological risk factors, perceptions of defeat (i.e., a failed social struggle; Gilbert & Allan, 1998; Williams, 1997), entrapment (i.e., inability to escape from situations; Gilbert & Allan, 1998; Williams, 1997), and hopelessness (i.e., a presence of negative future expectations and a lack of positive future expectations; Johnson, Gooding, & Tarrier, 2008; O'Connor, 2003; O'Connor & Kirtley, 2018) have been implicated as precursors to suicidal thoughts, urges, plans, behaviours, and suicide deaths. Such modifiable factors may potentially help better understand the

mechanisms of and prevent suicide-related behaviours and deaths in people experiencing mental health problems.

Evidence shows that people with severe mental health problems are at a substantially higher risk of suicide death compared to the general population. Literature reviews have estimated that around 90% of all suicide deaths are carried out by people with mental health problems such as depression, bipolar disorder, personality disorders, substance use disorders and schizophrenia (Hawton & van Heeringen, 2009; Windfuhr & Kapur, 2011).

1.4. Suicidal Experiences in People with a Diagnosis of Schizophrenia

1.4.1. Characterising schizophrenia

Schizophrenia is a severe mental health problem which affects approximately 20 million people in the world (WHO, 2019a). In the UK, the annual prevalence rate of schizophrenia is 15.2 per 100,000 people (Kirkbride et al., 2012). Living with schizophrenia has a serious impact on personal and social functioning and quality of life (e.g., working and sexual life; Galuppi, Turola, Nanni, Mazzoni, Grassi, 2010; Solanki, Singh, Midha, & Chugh, 2008) and is associated with substantial societal and economic costs. The estimated annual economic cost of schizophrenia in the UK is between £8.8 and £11.8 billion (Kirkbride et al., 2012; The Schizophrenia Commission, 2012). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association (APA), 2013), schizophrenia is characterised by a co-occurrence of at least two of the following five symptoms: delusions, hallucinations, disorganised speech, disorganised behaviour, or negative symptoms (e.g., diminished emotional expression, avolition), for at least one month. At least one of the symptoms must be delusions, hallucinations or disorganised speech.

Psychosis is a global term used to describe many of the symptoms experienced by people with schizophrenia. This mental health problem is characterised by significantly altered thoughts, behaviours and perceptions of reality (National Institute for Health and Care Excellence (NICE), 2014). Psychosis experiences are divided into positive and negative symptoms. Positive symptoms comprise hallucinations and delusions, whereas negative symptoms comprise blunted emotional responses, social withdrawal, impaired cognitive functioning, self-neglect and lack of motivation (APA, 2013; NICE, 2014; WHO 2016). However, psychosis is not limited to schizophrenia. A number of psychosis-related mental health problems have been described in contemporary psychiatric diagnostic criteria, such as the DSM-5 (APA, 2013) and the International Classification

of Diseases (ICD-10; WHO, 1992). These include schizophrenia but also schizoaffective disorder, delusional disorder, schizophreniform disorder, and non-affective psychosis (NICE, 2014). Symptoms of psychosis are also observed in other mental health problems, such as depression, post-traumatic stress disorder (PTSD), bipolar disorder and dementia (DeVylder, Burnette, & Yang, 2014; Goodwin & Jamison, 1990).

Although affective symptoms are not core symptoms associated with a diagnosis of schizophrenia, there has been an increased recognition of the role and prevalence of affective symptoms in people with a diagnosis of schizophrenia. Studies have identified experiences of depression and related symptoms in the prodromal, acute, and recovery phase of non-affective psychosis (Russo et al., 2014; Upthegrove et al., 2010).

1.4.2. The epidemiology of suicide in schizophrenia

People with a diagnosis of schizophrenia or related mental health problems are at increased risk of premature all-cause mortality (Walker, McGee, & Druss, 2015) and have a life expectancy which is 10-20 years shorter than that found in the general population (Hjorthoj, Sturup, McGrath, & Nordentoft, 2017; Laursen et al., 2014; The Schizophrenia Commission, 2012; Tiihonen et al., 2009). Together with cancer and cardiovascular diseases, suicide is one of the leading causes of premature death in this diagnostic group (Bushe, Taylor, & Haukka, 2010; Healy et al., 2012; Reininghaus et al., 2015). It is estimated that between 4% and 13% of people with mental health problems on the schizophrenia spectrum will die by suicide (Hor & Taylor, 2010; Palmer, Pankratz, & Bostwick, 2005; Siris, 2001). In the past decade in the UK, there were 3,066 deaths from suicide by people with a primary diagnosis of schizophrenia (National Confidential Inquiry into Suicide and Homicide by People with Mental Illness, 2015). Studies have reported a suicidal ideation (i.e., thinking about suicide; suicidal thoughts) rate of 28% and a lifetime prevalence of suicide attempts between 20% and 40% in people with schizophrenia diagnoses (Bornheimer & Jaccard, 2016; Pompili et al., 2007; Suokas et al., 2010). Suicidal ideation is an important precursor to suicide attempts in people with a diagnosis of schizophrenia which may lead to death (Kontaxakis et al., 2004). Experiences of greater frequency of suicide attempts have been reported to increase the risk of death by suicide in this population (Fuller-Thomson & Hollister, 2016; Hawton, Sutton, Haw, Sinclair, & Deeks, 2005).

These data show that suicide deaths and the related suicidal experiences are a major health concern in this diagnostic group. Besides being important risk factors for suicide death, experiencing suicidal thoughts and behaviours is immensely distressing for individuals and their carers (Tarrier, Khan, Cater, & Picken, 2007; Tarrier et al., 2013). Therefore, it is important not only to focus on the precursors of suicide death, but also to examine the impact of suicidal thoughts, plans and behaviours. Reducing the rate of suicide-related experiences and the associated psychological distress is an important treatment target (Tarrier et al., 2013).

1.5. Contemporary Models of Suicide

Theoretical models of suicide have important implications for theory and clinical practice in attempting to develop our understanding of the mechanisms underlying suicidal thoughts and behaviours, and suicide deaths. Historically, Freud's (1920) and Menninger's (1938) observations of self-destructive behaviours formed the basis of research on the understanding of suicidality. Baumeister (1990) integrated the concept of self-destructive behaviour into a theory which defined suicide as a desire to escape from the self and from aversive internal experiences (i.e., thoughts, emotions). Shneidman (1993) related suicide to "psychache" which is an intense, intolerable emotional and psychological pain. According to this theory, suicide is a perceived solution for a relief from psychache. Shneidman's concepts have shaped many contemporary models of suicide (Jobes & Nelson, 2006). These theories are important in generating scientific interest in the field of suicide. However, a major criticism is the lack of empirical research with practical implications and specific predictions that can be tested scientifically (Barzilay & Apter, 2014).

The need for scientifically grounded, testable psychological theories resulted in the development of contemporary models of suicide, including the Cry of Pain model (CoP; Williams, 1997), the Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008; Johnson, Gooding, Wood, & Tarrier 2010a), the Interpersonal Psychological Theory of Suicide (IPTS, Joiner, 2005), the Integrated Motivational-Volitional Model (IMV; O'Connor, 2011, O'Connor & Kirtley, 2018), and the Three-Step Theory (3ST; Klonsky & May, 2015). Table 1.1 presents the key features and limitations of each contemporary model of suicide.

As seen in Table 1.1, there is considerable conceptual overlap across the five models of suicide. For example, defeat, entrapment and hopelessness may not be independent constructs. Furthermore, thwarted belongingness and lack of connectedness, included in the Interpersonal

Psychological Theory of Suicide (IPTS) and Three-Step Theory (3ST), respectively, seem to be similar conceptually. Consideration of the role of protective factors is generally missing across all models. The only exception for the Schematic Appraisals Model of Suicide (SAMS). Therefore, refining and integrating the diverging, as well as the converging factors from models into a comprehensive framework would advance knowledge in the field of suicide research (Barzilay & Apter, 2014; O'Connor, 2011). The premises of these models and evaluation of the factors which they propose to be potentially protective of suicidal experiences and suicide death are outlined in the following section.

Table 1.1. *Key features and limitations of five contemporary models of suicide.*

Model	Key features	Limitations
1. Cry of Pain (CoP)	– Includes main suicide-related precursors, namely defeat and entrapment. – Includes appraisals of the situation. – Includes information processing and memory biases. – Includes rescue factors which have implications for resilience to suicide research. – Theoretically grounded and empirically tested.	– Main constructs not clearly defined. – Conceptual overlap between main constructs. – Insufficient account for suicide correlated factors. – Not clear how model components interact with risk factors to elevate or lower suicide-related experiences. – Assumes a linear progression through phases of suicide-related experiences.
2. Schematic Appraisals Model of Suicide (SAMS)	– Includes main suicide-related precursors, namely defeat, entrapment and hopelessness. – Includes situation and self-appraisals. – Includes information processing and memory biases. – Includes suicide schema. – Implication of factors which confer resilience to suicide and buffer against suicide risk (i.e., positive self-appraisals). – Theoretically grounded and empirically tested.	– Conceptual overlap between main constructs.
3. Interpersonal Psychological Theory of Suicide (IPTS)	– Includes notion of thwarted belongingness as a risk factor. – Includes capability to suicide as a risk factor. – Includes social reciprocity as a potential protective factor against suicidality. – Theoretically grounded and empirically tested.	– Main constructs not clearly defined. – Conceptual overlap between main constructs. – Not clear how model components interact with risk factors to elevate or lower suicide-related behaviour. – Assumes a linear progression through phases of suicide-related experiences. – Implication of only three risk factors for suicide-related behaviours. – No consideration of key suicide precursors, namely, defeat, entrapment and hopelessness.
4. Integrated Motivational-Volitional Model (IMV)	– Includes main suicide-related precursors, namely, defeat, and entrapment. – Includes capability to suicide as a risk factor. – Proposition of factors (e.g., resilience) which may impede progression through each stage.	– Main constructs not clearly defined. – Conceptual overlap between main constructs. – Assumes a linear progression through phases of suicide-related experiences. – Evidence for the final, volitional phase is poor.

	– Includes a broad range of risk factors for suicide (e.g., sociocultural, environmental, biological, cognitive, interpersonal). – Theoretically grounded and empirically tested.	
5. Three-Step Theory (3ST)	– Includes a main suicide-related precursor, i.e., hopelessness. – Includes capability to suicide as a risk factor. – Includes connectedness as potentially protective against hopelessness and psychological pain. – Theoretically grounded and empirically tested.	– Main constructs not clearly defined. – Conceptual overlap between main constructs. – Not clear how model components interact with risk factors to elevate or lower suicide-related behaviour. – Assumes a linear transition from suicidal ideation to behaviours. – Simplistic, binary view of suicidal ideation and behaviours.

1.5.1. The Cry of Pain Model (CoP)

Extending theories of escape and arrested flight (Baumeister, 1990; Gilbert & Allan, 1998), the Cry of Pain (CoP) model postulates that suicide is a response to stressful life events, whereby feelings of defeat, entrapment, and perceived lack of rescue interact and contribute to suicidal thoughts and behaviours and/or suicide deaths (Williams, 1997; see Figure 1.1).
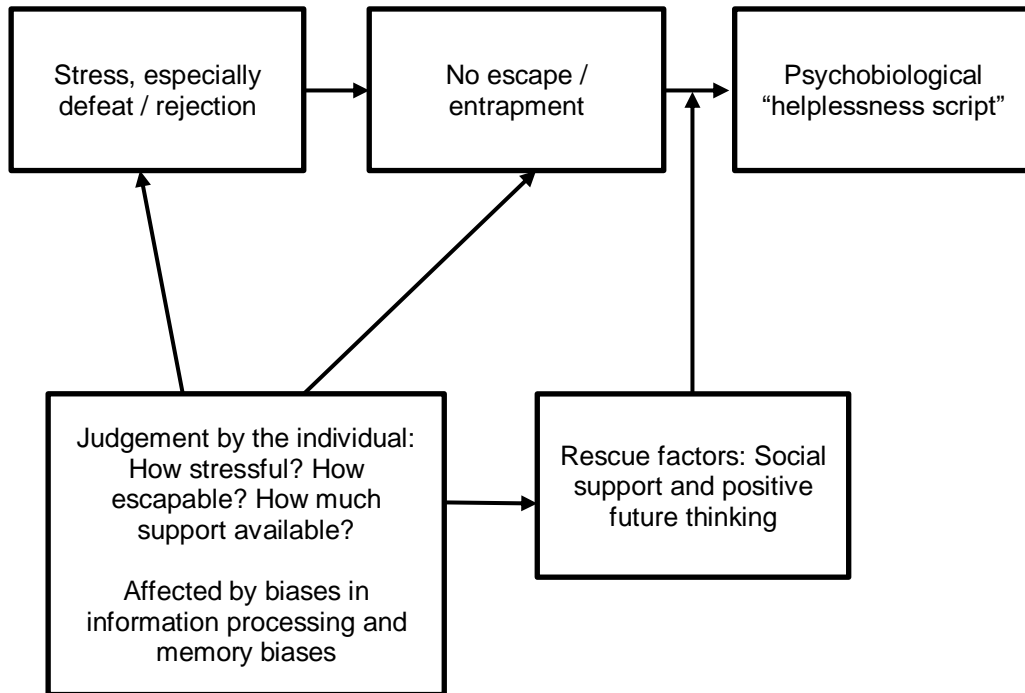
Figure 1.1. Representation of the Cry of Pain Model (adapted from Williams, 1997).

Perceptions of no rescue proliferate the perception of entrapment, which is a strong predictor of suicidal experiences (Taylor, Gooding, Wood, & Tarrier, 2011b). The model maintains that an individual's judgement of and perceived ability to escape from a difficult situation influence the feelings of defeat and entrapment. These perceptions can activate a "helplessness script" (Williams, 1997) which reinforces the suicidal drive. The presence of rescue factors, such as social support and positive future thinking, can moderate the relationships between entrapment and suicidal thoughts and behaviours, subsequently reducing the risk of suicide death before the helplessness script is activated (Williams, 1997).

1.5.2. The Schematic Appraisals Model of Suicide (SAMS)

The Schematic Appraisals Model of Suicide (SAMS) builds on the Cry of Pain (CoP) model, implicating information processing biases (i.e., memory, attention, reasoning), memory schema

and an appraisals system (i.e., situational and self-appraisals, appraisals of the past and the future) in the pathway to suicide (Johnson et al., 2008; see Figure 1.2).
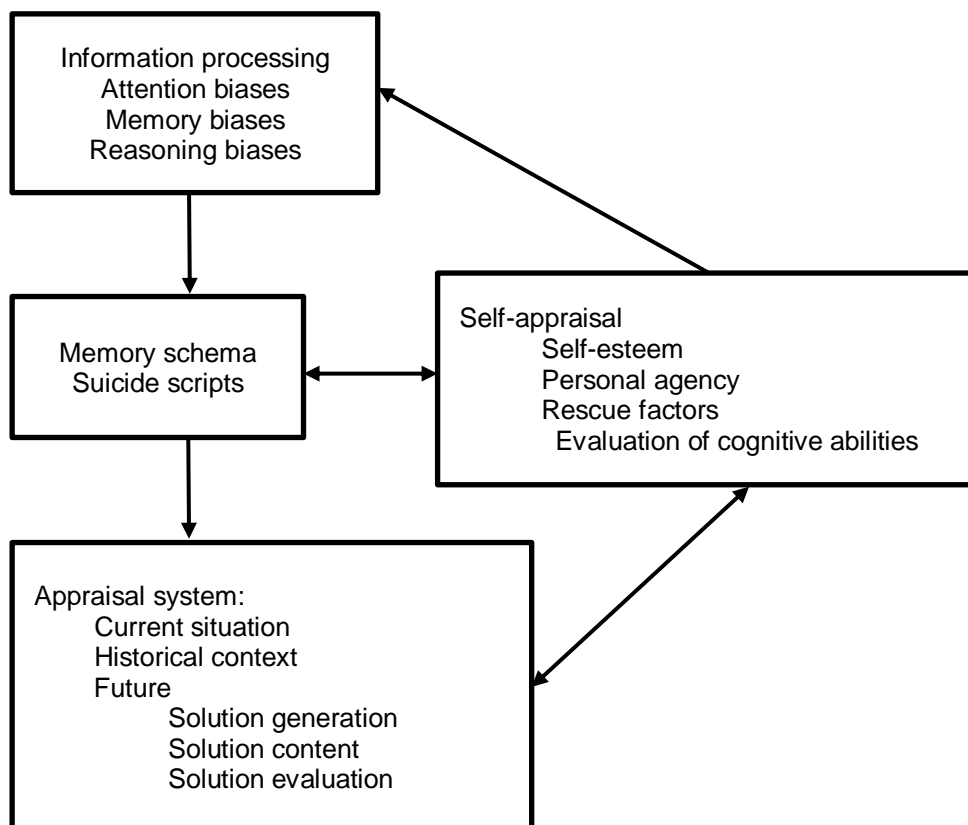
Figure 1.2. Representation of the Schematic Appraisals Model of Suicide (adapted from Johnson et al., 2008).

Selective attention to negative stimuli results in the formation of negative information biases which facilitate both the encoding and retrieval of negative, suicide-relevant information (Johnson et al., 2008). The suicide memory schema consists of a complex system of stimulus, response, and emotional information which can be activated at any point to trigger suicidal thoughts and behaviours (Christianson & Engelberg, 2006). This suicide memory schema is strengthened through repeated activation which helps form an elaborate network of further cognitions, emotions, or stimuli that, over time, increase the suicide potential (Johnson et al., 2008).

In addition, the SAMS also suggests that there are two types of appraisals which are important to understanding suicidal experiences – situation appraisals (i.e., perceptions of current, past and future situations, such as appraisals of social support, emotional regulation and inter-personal problem solving) and self-appraisals (i.e., evaluation of self-esteem, personal agency, rescue factors, and cognitive abilities). If a situation is appraised as entrapping or defeating, this can

increase suicidality. The self-appraisals system, on the other hand, affects all relevant cognitive processes. The distinction between negative and positive self-appraisals is important. Negative self-appraisals can result in feelings of hopelessness, defeat and entrapment, whereas positive self-appraisals may have a protective role and serve as a source of resilience (Johnson et al., 2010a). The SAMS is the only model to date which explicitly aimed to explain the psychological mechanisms underlying suicidality in people experiencing psychosis and implicated positive self-appraisals as conferring resilience to suicidal thoughts and behaviours. However, psychosis symptoms and their interaction with other constructs are not included as a factor in the model.

1.5.3. The Interpersonal Psychological Theory of Suicidal Behaviour (IPTS)

The Interpersonal Psychological Theory of Suicidal Behaviour (IPTS; Joiner, 2005) is based on Baumeister and Leary's (1995) theory of the need to belong which is considered a fundamental human need and Sabbath's (1969) family systems theory of adolescent suicidal behaviour which posits that perceptions of being an expendable part of the family lead to suicidal behaviours. Relatedly, the IPTS suggests that the presence of two cognitive states which are perceived burdensomeness and thwarted belongingness, lead to a desire for death by suicide (Joiner, 2005; see Figure 1.3).
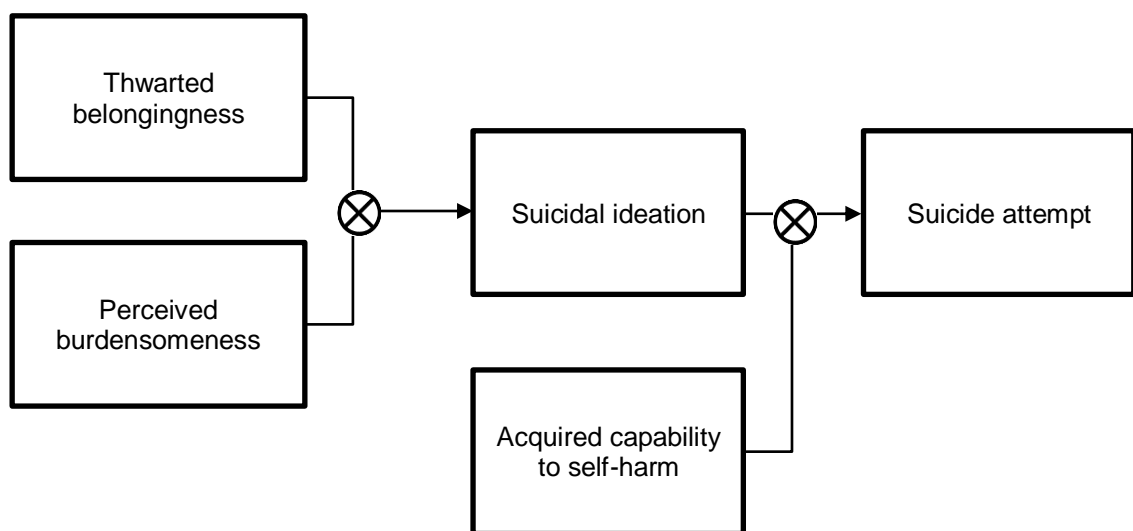
Figure 1.3. Representation of the Interpersonal Psychological Theory of Suicidal Behaviour (adapted from Christensen, Batterham, Mackinnon, Donker, & Soubelet, 2014).

Perceived burdensomeness is the view that an individual has that they are a burden to society, family and friends. Thwarted belongingness reflects an individual's sense of alienation from others

and a perception of not belonging to valued circles or groups (e.g., family, friends, the wider community; Joiner, 2005). Baumeister and Leary (1995) argued that belongingness is a basic human need. A lack of a sense of acceptance from others can result in feelings of thwarted belongingness, subsequently amounting to a desire for death by suicide (Van Orden et al., 2010). However, the presence of perceived burdensomeness and thwarted belongingness alone is not thought to be sufficient to cause an individual to perform behaviours leading to suicide. The IPTS proposes that a third component must be present, which is the capability for lethal, or near lethal, self-injury. It is proposed that this capability is developed through recurring exposure to painful or disturbing experiences which result in reduced fear of death and increased pain tolerance (Van Orden et al., 2010).

1.5.4. The Integrated Motivational-Volitional Model (IMV)

The Integrated Motivational-Volitional Model (IMV) of suicidal behaviour aims to develop our understanding of why people die by suicide (O'Connor, 2011; O'Connor & Kirtley, 2018; see Figure 1.4). The model incorporates three main phases: i. a pre-motivational phase, ii. a motivational phase, and iii. a volitional phase. The model draws upon the stress-diathesis theory of suicide (Rubinstein, 1986) and recognises the relationships between environmental, cultural, psychological and biological factors in the characterisation of suicidality. The stress-diathesis concept is included in the first, pre-motivational phase. Individuals may be predisposed to different vulnerabilities or diatheses (e.g., psychological, environmental). These vulnerabilities may be benign until they are triggered by factors such as stress. Similar to the Interpersonal Psychological Theory of Suicidal Behaviour (IPTS) and the Three-Step Theory of suicide (3ST), the IMV aims to explain suicidal processes based on the ideation-to-action framework which posits that suicidal ideation and suicide attempts should be viewed as separate phenomena (Klonsky & May, 2015; Klonsky, Qui, & Saffer 2017).

Pre-Motivational Phase: Background Factors & Triggering Events	Motivational Phase: Ideation / Intention Formation	Volitional Phase: Behavioural Enaction
Diathesis + Environment + Life Events	Defeat & Humiliation → Entrapment → Suicidal ideation & Intent	Suicidal Behaviour
	Threat to Self-Moderators (TSM)	Motivational Moderators (MM)	Volitional Moderators (VM)
	e.g., social problem-solving, coping, memory biases, ruminative processes	e.g., thwarted belongingness, burdensomeness, future thoughts, goals, norms, resilience, social support, attitudes	e.g., access to means, planning, exposure to suicide, impulsivity, physical pain sensitivity, fearlessness about death, imagery, past behaviour

Figure 1.4. Representation of the Integrated Motivational-Volitional Model of suicidal behaviour (adapted from O'Connor & Kirtley, 2018).

The second, motivational phase includes factors, namely appraisals of defeat, humiliation and entrapment which are associated with the development of intention to engage in suicidal behaviour. Similar to the CoP, the appraisals of defeat, humiliation and entrapment emerge as a consequence of the stress experienced in the pre-motivational phase and are moderated by an array of threat to self and motivational factors, such as memory biases, social problem-solving, coping, rumination, burdensomeness, thwarted belongingness, social support, future thoughts, resilience, goals and attitudes. The final, volitional phase describes the transition from suicide intent to suicidal behaviour. Progression into this phase is precipitated by numerous volitional moderators, such as access to means, planning, exposure to suicide, impulsivity, physical pain sensitivity, fearlessness about death, imagery and past behaviour. These motivational and volitional moderators can act either as facilitators to or buffers against the progression through the phases (O'Connor, 2011; O'Connor & Kirtley, 2018).

1.5.5. The Three-Step Theory of Suicide (3ST)

The Three-Step Theory of Suicide (3ST) is based on the ideation-to-action framework (Klonsky & May, 2015) which is consistent with the Interpersonal Psychological Theory of Suicidal Behaviour (IPTS) and the Integrated Motivational-Volitional (IMV) model of suicidal behaviour. The theory consists of three steps (see Figure 1.5).
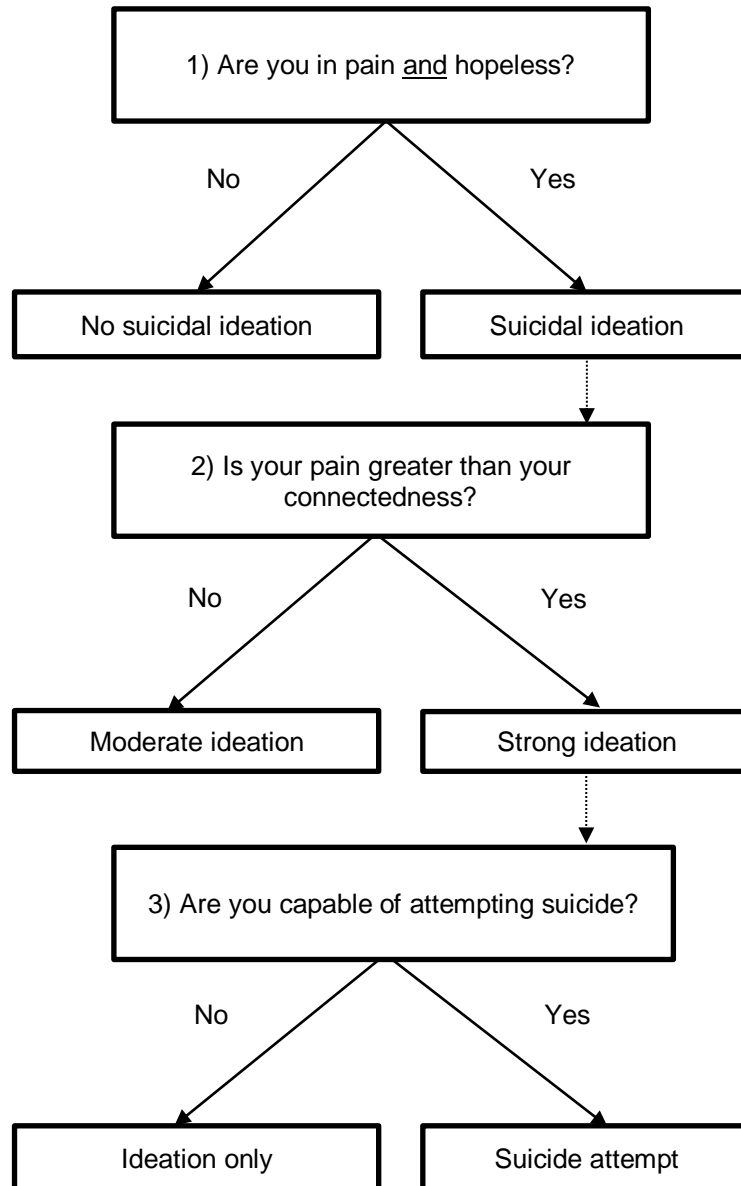
Figure 1.5. Representation of the Three-Step Theory of Suicide (adapted from Klonsky & May, 2015).

The first step involves the development of suicidal ideation. Psychological pain and hopelessness are found to be main precipitators of suicide attempts (May & Klonsky, 2013). Feelings of

psychological pain and hopelessness that the pain will abate are required for suicidal ideation to develop at step one.

The second step describes the transition from moderate to strong suicidal ideation. Sense of connectedness (i.e., attachment to other people, employment, interests, or sense of purpose and support from others) forms the basis of the second step. Experiences of disrupted connectedness may be similar to that of thwarted belongingness described in Joiner's (2005) Interpersonal Psychological Theory of Suicide. Thwarted belongingness has been proposed to arise when the fundamental need for connectedness and belonging is unmet (Baumeister & Leary, 1995; Cacioppo & Patrick, 2008). In the presence of psychological pain and hopelessness, connectedness can keep suicidal ideation to a moderate level (Klonsky & May, 2015) and can thus be viewed as protective of suicidal ideation. Besides psychological pain, hopelessness and connectedness, there are other risk factors, such as previous experiences, personality traits and mental health problems which are relevant to suicidality (Klonsky & May, 2015).

The third step describes the transition from strong suicidal ideation to suicide attempts. This final step elaborates Joiner's (2005) idea about acquired suicide capability by adding two more types of capability – dispositional and practical. Dispositional capability relates to genetic predispositions (e.g., threshold of pain), whereas practical capability relates to specific factors that facilitate suicide attempts (e.g., access to lethal weapons). These practical capabilities converge with the CoP model. Acquired capability is a result of habituation to pain or fear which subsequently increases suicide capability (Klonsky & May, 2015).

1.5.6. Factors inferred by models of suicide as protective of suicidal experiences

Due to the prevailing focus on risk factors, the literature in the field of suicide is weighted more towards a model of ill-health (Luo, Wang, Wang, Cai, 2016; McLean et al., 2008; Nock et al., 2008a). Therefore, the literature holds a significantly larger body of evidence relating to precursors of suicide than suicide protective factors (Beautrais, Collings, Ehrhardt, & Henare, 2005; Brent, 2011; Prinstein, 2008; Vijaykumar, 2004).

The five contemporary models of suicide can identify factors which buffer against and moderate the relationships between potential precursors of suicide death and suicidal thoughts and behaviours, albeit to different degrees. Protective factors can ameliorate responses to adverse events that predispose individuals to experience maladaptive outcomes (Rutter, 1985) and thus underpin

resilience processes. The buffering hypothesis is useful in elaborating the relationship between suicide risk, protective factors and adverse life events (Johnson et al., 2008). Risk and protective factors can be viewed as two opposite ends of a spectrum (Breton et al., 2015). The buffering hypothesis maintains that having certain resources or personality traits can buffer against the deleterious impact of stressful life events (Carver, 1996). Such resources or traits have been suggested to be potentially promotive of resilience (Johnson et al., 2008; Johnson et al., 2010b). Within the context of psychosis and suicidality, the buffering hypothesis suggests that resilience is not simply the opposite of risk because resilience moderates the relationship between suicide risk factors and suicidal thoughts and behaviours. Moreover, the buffering hypothesis explains that risk and resilience should be viewed as entities which are separate, bipolar (i.e., the inverse of a risk factor can be viewed as being protective and vice versa), and internal to the individual (Johnson, Wood, Gooding, Taylor, & Tarrier, 2011).

The Cry of Pain (CoP; Williams, 1997) model implicates social support and positive future thinking as resilience factors which may alleviate suicidal ideation. A case-control study with suicidal individuals and matched controls found support for the CoP model and for the role of social support in buffering against feelings of entrapment and suicidality (O'Connor, 2003). Rasmussen and colleagues (2010) found that positive future thinking capability moderated the relationship between entrapment and suicidal thoughts by reducing the impact of entrapment on suicidal thoughts. Impaired positive future thinking is equivalent to inability to generate reasons for living, resulting in loss of hope for rescue from intolerable experiences (O'Connor, Fraser, Whyte, MacHale, & Masterton, 2008).

The Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) highlights the role of positive self-appraisals in protecting against suicidality. Importantly, the SAMS model enabled mechanisms underlying resilience to suicide to be empirically tested. The model described how the interaction between situation appraisals and self-appraisals in the face of stressful life events could have an impact on suicidality. Negative self-appraisals can have a deleterious impact on one's life, but positive self-appraisals can have a protective role, conferring a resilience source. Positive self-appraisals impact the situational appraisals by reducing the likelihood that stressful events will be appraised as negative. This, subsequently, reduces the probability of suicidality (Johnson et al., 2010b).

Johnson and colleagues (2010b) assessed the impact of positive self-appraisals on suicidality in a sample of people with schizophrenia-spectrum mental health problems. They found that positive self-appraisals, such as perceived high social support, problem-solving and emotional coping abilities buffered against the impact of stress on suicidality. A study with a sample of people experiencing post-traumatic stress disorder (PTSD) found support for the SAMS model (Panagioti, Gooding, Taylor, & Tarrier, 2014). In particular, perceptions of high levels of social support moderated the relationship between PTSD symptoms and suicidality, suggesting that social support was an important source of resilience (Panagioti et al., 2014). Moreover, a qualitative study found that perceptions of social support prevented individuals with a diagnosis on the schizophrenia spectrum from thinking about suicide (Gooding, Sheehy, & Tarrier, 2013). Further studies have provided empirical support for the appraisals system and suicide schema components of the SAMS in people with psychosis and suicidal experiences (Pratt, Gooding, Johnson, Taylor, & Tarrier, 2010; Taylor et al., 2010a; 2010b).

The Integrated Motivational-Volitional (IMV; O'Connor, 2011; O'Connor & Kirtley, 2018) model of suicidal behaviour includes several moderators which can either facilitate or obstruct progression through the different phases. These moderators include future thoughts, goals, norms, resilience, social support and attitudes. A study testing the IMV model found that emotional stability was negatively correlated with suicidal ideation, whereas internal (e.g., pride, life satisfaction) and external protective factors (e.g., family, friends) did not correlate with suicidal ideation (Dhingra, Boduszek, & O'Connor, 2016). This suggests that individual factors such as emotional stability may be a useful future target for developing suicide interventions. However, this study assessed correlations between factors, rather than the moderation effects of emotional stability.

The Interpersonal Psychological Theory of Suicide (IPTS; Joiner, 2005) implicates a protective role of social factors and suggests that social reciprocity may be important in suicidality (Joiner, Van Orden, Witte, & Rudd, 2009). If an individual feels they are a burden to family, friends or society, this might increase their suicidality (Ribeiro & Joiner, 2009), whereas if they feel valued by others and have a high sense of self-worth, their suicidality may decrease. This can be demonstrated by the "pulling together" effect whereby collective experiences, such as those during national crises, are associated with lower suicide rates (Joiner, Holler, & Van Orden, 2007). The importance of social support was documented in studies including people with experiences of psychosis, schizophrenia and PTSD (Gooding Littlewood, Owen, Johnson, & Tarrier, 2017; Harris, Gooding,

Haddock, & Peters, 2019a; Harris, Haddock, Peters, & Gooding, 2019b; Panagioti et al., 2014). These studies suggest that perceived social support may be protective of developing suicidal thoughts and behaviours, and, therefore, is implicated as a potential source of resilience.

The Three-Step Theory (3ST; Klonsky & May, 2015) of suicide posits that sense of connectedness can prevent suicidal ideation from escalating to a strong suicidal ideation or suicide attempt. In their study evaluating the 3ST, Klonsky and May (2015) found that connectedness increased the desire to live, even among individuals who were experiencing high levels of pain and hopelessness. Suicidal ideation was reduced in individuals scoring higher on connectedness than pain and hopelessness. The authors concluded that connectedness could protect against progression from suicidal ideation to suicide attempt (Klonsky & May, 2015). However, this study did not assess the moderating effect of connectedness but the correlations between connectedness and suicidal thoughts and behaviours.

It is evident that the contemporary models of suicide present a wide range of protective factors which may buffer against suicidal thoughts and behaviours. These include social support, social reciprocity, sense of connectedness, positive future thinking, positive self-appraisals (i.e., social support, problem-solving and emotional coping abilities), social problem-solving skills, coping skills and attitudes. Some factors overlap between models, whereas others are specific to each model. All five models implicate perceived social support, two models implicate social reciprocity and connectedness to others (IPTS and 3ST), two models implicate positive future thinking (CoP and IMV), and three models implicate problem solving skills and emotional coping (CoP, IMV and SAMS) as being protective of suicidality. Of note, the moderating factors implicated in the IMV model (e.g., social problem-solving skills, coping, memory biases, resilience and attitudes) could either increase or attenuate suicidality (O'Connor, 2011). Therefore, in the absence of research confirming the potential protective role of the IMV factors, they should be cautiously purported to be conferring resilience to suicidality. These contemporary models of suicide have been developed to help understand suicidal experiences in people. An important question to address is the extent to which evidence does or does not support the protective factors implicated by the models of suicide and how these models of suicide can be further developed to include psychological resilience mechanisms.

1.6. Psychological Resilience

The concept of resilience has been a topic of interest in the areas of ecology, organisational and occupational research, developmental and clinical psychology (Garmezy & Masten, 1986; Haskett, Nears, Sabourin Ward, & McPherson, 2006; Holling, 1973; Johnson et al., 2010a; Rees, Breen, Cusack, & Hegney, 2015; Windle, Bennett, & Noyes, 2011). Over the years, the concept has evolved and acquired multiple meanings, depending on the context of its application, such as family environments, cultures, social support systems, and individual characteristics (Jowkar, Friborg, & Hjemdal, 2010). Psychological resilience has been defined as "coping with disruptive, stressful, or challenging life events in a way that provides the individual with additional protective and coping skills than prior to the disruption that results from the event" (Richardson, Neiger, Jensen, & Kumpfer, 1990, p. 34). In suicide research, resilience has been defined as "an ability or set of beliefs or perceptions which buffer individuals against the development of suicidality in the face of risk factors" (Johnson et al., 2011, p.566; see Appendix A for a comprehensive list of resilience definitions). One of the first studies of resilience identified an important role of psychological resilience in counteracting the deleterious influence of adverse life events, such as experiencing psychosis symptoms, on individuals, and fostering positive adaptation (Garmezy & Rodnick, 1959).

A theoretical distinction is made between resilience resources and resilience assets. Resilience resources are those external to the individual, such as having family support, engaging in community and peer activities (e.g., volunteering, involvement in a sports team; Blum, McNeely, & Nonnemaker, 2002). Resilience assets, on the other hand, refer to internal promotive positive factors (e.g., competency, coping skills, self-efficacy; Fergus & Zimmerman, 2005). What is potentially missing in the distinction between resilience assets and resilience resources is the recognition of these as perceptions that the individual has to identify and engage with.

Historically, there are four waves of resilience inquiry which have shaped resilience research (O'Dougherty Wright, Masten, & Narayan, 2013). The first wave of resilience inquiry explored and described resilient qualities that predict social and/or personal success despite adversity (Fleming & Ledogar, 2008; Richardson, 2002). The second wave of resilience inquiry attempted to understand the processes which underpin the protective factors described in the first wave and how they operate. Therefore, the second wave inquiry conceptualised resilience as a dynamic process whereby an interaction of internal (e.g., self-efficacy) and external (e.g., social support)

protective factors promoted adaptation to a stressful situation (Richardson, 2002). The third wave of resilience inquiry goes beyond description of individual characteristics and resilience processes and focuses on ways to nurture and maintain resilience in individuals to adapt and grow when experiencing life adversity or stress (Fleming & Ledogar, 2008). The fourth wave of resilience inquiry adopts an interdisciplinary approach to understanding resilience, including epigenetic and neurobiological processes, and the ways in which these interact to contribute to resilience in communities and organisations, as well as individuals (O'Dougherty et al., 2013). The focus is on integrating knowledge from trans-disciplinary research to inform policy and research design in the field of resilience. The fourth wave of resilience inquiry is in its infancy and can be criticised for its broad approach to understanding resilience in different sociocultural contexts.

With the rapid growth of resilience research, issues have ensued in relation to the conceptual definition, components, and method of study of resilience. Multiple empirical and theoretical studies have been conducted within the field of psychology and mental health which have led to little consensus on the exact definition of resilience (e.g., Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Graber, Pichon, & Carabine, 2015; Karairmak, 2010; Karreman & Vingerhoets, 2012; Liu, Wang, & Li, 2012; Luthar, Cicchetti, & Becker, 2000; Pecillo, 2016). This lack of consensus may stem from the disparity across assessment tools and theoretical positions (Graber, Pichon, & Carabine, 2015). Therefore, psychological resilience research is in need of a uniform conceptualisation (Davydov, Stewart, Ritchie, & Chaudieu, 2010) which can aid the development of theoretical frameworks that underpin the validity of resilience inquiry (Fletcher & Sarkar, 2013). Despite the lack of clear conceptualisation, the definitions of resilience have several aspects in common. They include the presence of risk or predisposing factors (e.g., adverse life events or stress), a positive outcome (e.g., recovering/"bouncing back" from the deleterious impact of the adverse event), and a range of protective attributes (e.g., personal beliefs, abilities, skills; see Figure 1.6). However, missing from this concept is the possibility of acceptance of negative events without a positive outcome, such as recovery or "bouncing back" (Gooding & Harris, 2020). Furthermore, the precise attributes and the ways they may lead to a positive outcome are not clear.

Antecedents   Attributes   Consequences

Adverse event:
Trauma, stress

Self-efficacy
Coping
Hope

Personal control
Psychological
adjustment
Personal growth
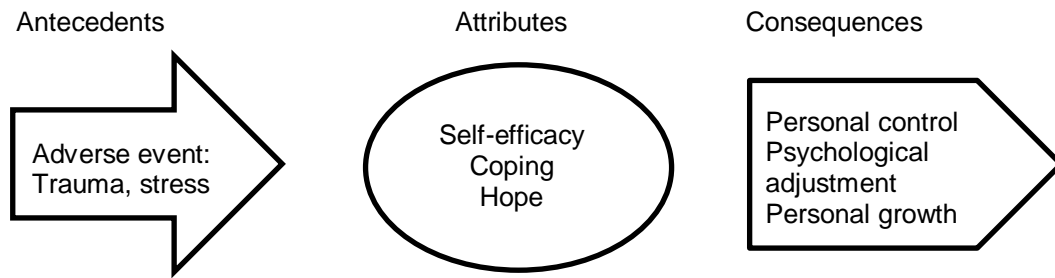
Figure 1.6. Schematic representation of the resilience concept (adapted from Fitzpatrick & McCarthy, 2016).

Definitions of resilience include three conceptualisations, namely, resilience as a trait, resilience as an outcome, and resilience as a process (Ayed, Toner, & Priebe, 2018; Hu, Zhang, & Wang, 2015; Kalisch, Muller, & Tuscher, 2015). The concept of resilience as a trait suggests it is a personality trait or asset that inoculates against, or helps individuals cope with, the impact of adverse life events to achieve positive adaptation (Connor & Davidson, 2003; Graber, Pichon, & Carabine, 2015; Ong, Bergeman, Bisconti, & Wallace, 2006). The outcome concept regards resilience as a by-product or a behavioural outcome that results from recovery following impact of adverse life events (Harvey & Delfabbro, 2004; Masten, 2001). A resilience outcome is usually determined by a range of modifiable psychosocial factors, for example, having a purpose in life, self-esteem, self-efficacy, optimism, social support, positive appraisals, acceptance and religious coping or spirituality (Helmreich et al., 2017; Kalisch et al., 2015; Mancini & Bonanno, 2009). The process concept describes resilience as an active, dynamic process during which individuals adapt to and recover from the impact of adversity (Fergus & Zimmerman, 2005; Luthar et al., 2000).

Psychological resilience is increasingly being viewed by researchers not as a trait, but as an amalgamation of modifiable factors or processes that can be nurtured and maintained by individuals (Masten, 2001; Padron, Waxman, & Huang, 1999). Recent qualitative and quantitative research has described resilience as a multi-componential, dynamic process, which develops over time and includes complex interactions of multiple mechanisms (Gooding & Harris, 2020; Gooding et al., 2017; Graber, Pichon, & Carabine, 2015; Harris et al., 2019a; Johnston et al., 2015; Kalisch et al., 2015; Kent, Davis, & Reich, 2014; Norris, Tracy, & Galea, 2009; Rutten et al., 2013; Sapienza & Masten, 2011; Southwick & Charney, 2012). Notably, the views and experiences of resilience, specifically to suicidality in people with diagnosis of schizophrenia, have not been considered or incorporated into the discussed conceptualisations of resilience. Thus, it is unclear the extent to which these conceptualisations of resilience can be applied to people experiencing different mental health problems, such as non-affective psychosis and schizophrenia. This is

important, considering the aims of the fourth wave of resilience inquiry to integrate knowledge from trans-disciplinary research in different contexts and populations.

1.6.1. Models of psychological resilience

There are five main approaches to modelling and understanding psychological resilience in individuals. These include: i. the unidimensional ("two poles"), ii. the two-dimensional (buffering), iii. the recovery, iv. the maintenance, and v. the psychological immunity models of resilience (Gooding & Harris, 2020; see Table 1.2 for description of key features and limitations of the models).

The first, unidimensional ("two poles") model of resilience includes a risk factor, (e.g., hopelessness) at one end of the dimension and a lack of risk (e.g., no hopelessness) at the other end of the dimension. This is also known as the dual factor or resilience-risk model (Cousins, Kalapurakkel, Cohen, & Simons, 2015; Gooding & Harris, 2020; Sturgeon & Zautra, 2010; Yeung, Arewasikporn, & Zautra, 2012). An issue with this model is that a lack of risk factors does not develop psychological resilience and being resilient, does not equate to an absence of risk factors. It has been argued that resilience is distinct from risk and conceptualisations of resilience should go beyond this unidimensional representation (Johnson et al., 2010a; 2010b; 2011; Wideman et al., 2013).

The second, two-dimensional (buffering) model suggests that resilience factors buffer the relationship between risk factors and the consequences of adverse life events (Garmezy, Masten, & Tellegen, 1984; Gooding & Harris, 2020; Hurd & Zimmerman, 2010; Johnson et al., 2010a; 2010b; O'Leary, 1998). This is in line with the buffering hypothesis which expands the unidimensional resilience model by suggesting that resilience factors can moderate or buffer the impact of suicide precursors (e.g., negative stressors) which increase the likelihood of negative outcomes (e.g., suicidal thoughts and behaviours; Johnson, 2016; Johnson et al., 2011). In this sense, resilience has been described as a switch which "turns down" the impact of risk (Johnson, 2016).

The resilience factors interact with risk factors by directly weakening or removing them and moderating their influence on an outcome. For example, if perceived self-esteem and social support have been shown to buffer the relationship between depression and suicidal ideation, this would indicate that low self-esteem and social support would increase the risk of suicidal ideation

Table 1.2. *Key features and limitations of five approaches to modelling psychological resilience.*

Model	Key features	Limitations
Unidimensional ("two poles")	– Includes risk (e.g., hopelessness) at one end of the dimension and a lack of risk (e.g., no hopelessness) at the other end of the dimension.	– Lack of risk does not equate to developing resilience. – Being resilient, does not equate to absence of risk. – Oversimplified understanding of risk and resilience relationship. – Evidence relies on correlational methodological designs which shows relationships between variables but not underlying mechanisms.
Two-dimensional (buffering)	– Risk and resilience considered as independent, interacting constructs (i.e., the presence of risk does not equate to lack of resilience). – Includes resilience factors which weaken/moderate the relationships between suicide triggers (e.g., negative stressors) and suicidal thoughts and acts.	– The mechanisms which underpin the buffering effect of resilience are not well understood. – The exact protective factors which confer resilience in individuals are unknown.
Recovery	– Incorporates regain of psychological functioning which occurs either during or following the experience of negative events or stressors. – Recovery relates to personal growth or "bouncing back" from adversity to a previous, or better, level of wellbeing experiences prior to the stressor.	– Determinants of the process of bouncing back and successful recovery from adversity are not well understood. – The concepts of bouncing back, personal growth and recovery lack conceptual clarity and require investigation. – Implies that only recovery/bouncing back confer resilience which can be viewed as simplistic. – Individuals may not necessarily return to a previous level of wellbeing. – Requires empirical investigation.
Maintenance	– Involves an ability to sustain a positive outlook despite negative stressors, in the long-term. – Linked to aspects of positive psychology which emphasises flourishing and thriving in life. – Unlike other approaches, does not depend on buffering or recovery processes.	– Assumes that sustaining a positive outlook on life, despite adversity, as a key resilience factor. – Optimal psychological functioning in certain life domains (e.g., mental health) may not necessarily be experienced. – Requires empirical investigation.
Psychological immunity	– Involves immunity to negative events or stressors (i.e., individuals' wellbeing is not affected by negative stressors).	– Assumes individuals are resistant to adversity by default. – Not clear exactly how psychological immunity operates in individuals. – Requires empirical investigation.

and increasing one's perceived self-esteem and social support could prevent suicidal ideation from occurring (Brausch & Decker, 2014). Having knowledge of buffering factors may be of particular importance in the management of risk which is difficult or impossible to modify, such as age or gender.

The third, recovery model of resilience incorporates regain of psychological functioning which occurs either during or following the experience of negative events or stressors (Bonanno, Westphal, & Mancini, 2011; Gooding & Harris, 2020; Norris et al., 2009). This process is sometimes conceptualised as "rebounding" or "bouncing back" to mental health states which preceded the onset of the stressors (Carver, 1998; Tugade & Fredrickson, 2004; Vaishnavi, Connor, & Davidson, 2007). The recovery model posits that, when people are exposed to moderate levels of risk, they can learn to overcome or neutralise precursors for future more serious risk of negative events (Garmezy et al., 1984; Rutter, 1987). Exposure to low or high risk is associated with negative outcomes but experiences of moderate levels of risk are sufficient for an individual to learn how to overcome them, recover from them, and at the same time, not perceive them as impossible to tackle. As such, experiences of moderate risk act as an inoculation for subsequent exposure to risk factors. However, it is not clear how recovery is determined, and whether there are any individual differences in bouncing back from stress. Furthermore, some individuals may not resonate with the concept of recovery (Leamy et al., 2016). Central to the recovery resilience model is the stressor, the subsequent negative deviations from functioning caused by the stressor and the extent to which these deviations are mitigated (Goubert & Trompetter, 2017).

The fourth, maintenance model of resilience encapsulates sustainability of a positive outlook despite negative experiences and events, sometimes over a long period of time (Gooding & Harris, 2020). This model targets the individual who is being challenged by the stressor in their pursuit of long-term positive outcomes. The model is closely linked to the tenet of positive psychology, namely thriving and flourishing in different life domains to achieve satisfaction (Keyes, 2002; Seligman & Csikszentmihalyi, 2000). A key aspect of positive psychology is that positive aspects of life are considered not merely the opposite of distress or dysfunction (Goubert & Trompetter, 2017). As such, the ability to maintain meaningful activities and values, despite adversity, is an important feature of the maintenance model of resilience. Contrary to the recovery and two-dimensional resilience models, optimal psychological functioning in some domains (e.g., mental

health) is not necessarily experienced and there may not be a buffering effect in the relationships between negative experiences and suicidal thoughts and behaviours. Furthermore, individuals do not necessarily return to a level of psychological function experienced prior to the onset of negative experiences. Both the recovery and maintenance resilience models are closely linked to aspects of positive psychology which focuses on understanding the role of positive emotions in achieving wellbeing and personal growth, rather than pathology (Compton, 2005; Seligman & Csikszentmihalyi, 2000). A link between positive psychology and resilience research is plausible due to a shared interest in personal growth. Maintaining positive emotions has been proposed to counter the impact of stress and increase adaptability, coping abilities and wellbeing (Fredrickson & Branigan, 2005). Furthermore, positive emotions have been implicated as an important source of resilience (Ong, Bergeman, & Boker, 2009; Seligman, Steen, Park, & Peterson, 2005). Ability to harness positive emotions has been related to increased resilience to future adverse life events (Geschwind, Peeters, Drukker, Van Os, & Wichers, 2010; Wichers et al., 2010). Investigating ways to harness and maintain positive emotions is particularly important for people experiencing psychosis because they tend to report higher levels of depression and hopelessness (Bornheimer & Jaccard, 2016; Upthegrove et al., 2010; Upthegrove, Ross, Brunet, McCollum, & Jones, 2014) compared to non-clinical samples.

The fifth, psychological immunity model of resilience involves immunity or insusceptibility to negative events or stressors (Gooding & Harris, 2020). Essentially, individuals are able to resist negative stressors and their wellbeing is not affected by them (Davydov, et al., 2010). This model is yet to be assessed within different populations and research contexts. The psychological mechanisms underpinning individual's immunity to factors which can be precursors for suicidal experiences, both during crises, and across the lifespan are unclear.

All models incorporate risk as a main factor against which resilience operates via different pathways and mechanisms. The specific pathways, however, are not well investigated and are poorly understood. Nevertheless, these approaches to modelling resilience offer, to an extent, an understanding of the relationships between risk and resilience and the different ways in which these interact and impact on individuals' wellbeing. It is important to note that the resilience models are not necessarily mutually exclusive. A multi-componental approach may offer an optimal understanding of resilience processes (Gooding & Harris, 2020). For example, there may be

buffering factors which eventually lead to recovery or maintenance factors and recovery factors may exist together and change across the lifespan.

Importantly, all models seem to converge on the idea that resilience can be nurtured. This is crucial for the development of psychological interventions which aim to foster resilience to offset the impact of mental health problems, including suicidal experiences on individual and broader societal levels. It remains to be investigated how these models can be developed and tested to understand both the pathways to suicidal experiences and the pathways to resilience to suicidal experiences across multiple contexts (e.g., severe mental health problems, such as psychosis and schizophrenia; Gooding & Harris, 2020).

1.6.2. Developing psychological resilience

The main premise of resilience research is to provide a description of the concept, facilitate the development of psychological resilience in individuals experiencing stress or adversity, develop mechanistic models and test them using convergent methodologies (Masten, 2011). An example of a therapeutic tool which may promote psychological resilience is the Broadminded Affective Coping technique (BMAC; Tarrier, 2010). The tool is based on the broaden-and-build theory which suggests that resilience can be developed by harnessing positive emotions which can counter the deleterious impact of adversity and stress on individuals (Fredrickson, 1998; 2001; Fredrickson, Mancuso, Branigan, & Tugade, 2000). Positive emotions are induced through the recollection of positive autobiographical memories, as well as mindfulness and meditation practices (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Geschwind et al., 2011). This tool has been used in studies with people experiencing PTSD and schizophrenia (Johnson, Gooding, Wood, Fair, & Tarrier, 2013; Panagioti, Gooding, & Tarrier, 2012). Following undergoing the BMAC technique, the participants in these studies reported increased levels of positive emotions, such as hope and happiness, and reduced levels of negative emotions, such as sadness and defeat, compared to those in a control condition. This shows that the tool may be a useful procedure for harnessing positive emotions which could impact on psychological resilience to suicidality in people experiencing psychosis and schizophrenia. However, the effects of the tool on reported levels of suicidality have not been empirically tested.

An important question is whether it is possible to nurture psychological resilience in people and what approaches might be effective. To establish this, it is essential to investigate the views of

people with lived experiences and involve them in the design and implementation of resilience interventions. Furthermore, it is necessary to have an understanding of precursors to suicidal experiences, modifiable protective mechanisms and perceived individual assets and resources (e.g., self, family, society), in order to develop effective resilience interventions (Bonanno, 2004; Luthar, Sawyer, & Brown, 2006; Rutter, 2013). However, the current evidence does not outline guidelines for developing psychological resilience in people. A systematic literature review evaluating the designs of 43 randomised controlled trials of interventions designed to foster resilience in a variety of clinical and non-clinical samples (e.g., police officers, students, army recruits, veterans, managers of services, people experiencing mental health problems, such as diabetes and depression, homeless people) found that the trials were limited in assessing the efficacy of the interventions for several reasons (Chmitorz et al., 2018).

First, a major issue was the lack of a resilience definitions in most studies. Only 18 out of the 43 included studies used a resilience definition. Furthermore, the studies were not grounded in a testable psychological theory or a model of psychological resilience.

Second, studies varied considerably with regards to the outcome measures, which limits comparisons across studies. Examples of study outcome measures include mental health-related constructs (e.g., psychological well-being, quality of life, job satisfaction), stress perception (e.g., perceived stress after simulated incident) and resilience factors (e.g., self-esteem, hardiness, locus of control, social support, problem solving). Resilience outcomes were measured using either established resilience scales, such as the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) and the Dispositional Resilience Scale (DRS; Bartone, Ursano, Wright, & Ingraham, 1989), a sub-scale of an established measure (e.g., Psychological Capital Questionnaire (PCQ); Luthans, Youssef, & Avolio, 2007) or self-developed scales.

Third, the trials were lacking *a priori* sample size calculations and long-term assessment of main variables following the intervention. This is problematic for estimating effect sizes and forming definitive conclusions regarding the effectiveness of these interventions in the long term. To overcome these drawbacks, the authors proposed a framework which could be used to assess resilience as an outcome in relation to stress exposure (Chmitorz et al., 2018). Having a clear framework for developing and testing resilience theories and models, although challenging, will ultimately improve the quality of resilience research and intervention development.

1.6.3. Resilience in the context of suicidal experiences and schizophrenia

There has been a recent surge of studies examining the role of psychological resilience in moderating suicidal thoughts and behaviours in people with different mental health problems such as PTSD, anxiety, depression, schizophrenia, and in non-clinical samples (Breton et al., 2015; Johnson et al., 2010a; 2010b; Min, Lee, & Chae, 2015; Panagioti et al., 2014; Rutter, Freedenthal, & Osman, 2008). Previous research has shown that some people with schizophrenia who experience negative stressors are resilient to the impact of suicide risk (Bolton et al., 2007; Gooding et al., 2017; Johnson et al., 2011; Phillips, Francey, Edwards, & McMurray, 2009). For example, a cross-sectional study including participants with schizophrenia and schizoaffective disorders found that higher quality of life scores and longer duration of mental health problems were associated with higher resilience scores (Yoshida et al., 2016). A different cross-sectional study of individuals recently diagnosed with schizophrenia-spectrum mental health problems found that low levels of resilience were associated with high levels hopelessness, which is a recognised correlate of suicidal experiences (Bozikas et al., 2016). Of note, these studies have tested the relationships between resilience and suicidality using the unidimensional ("two poles") model of resilience. Therefore, the factors which are proposed to confer resilience should be considered with caution and examined using the two-dimensional (buffering) resilience model. This would help identify potential modifiable factors which weaken suicidal experiences.

In relation to the nature of psychological resilience, positive self-appraisals, such as emotional coping and problem-solving abilities, and social support, were found to weaken the relationships between hopelessness and suicidal ideation in a sample of people with experience of psychosis (Johnson et al., 2010b). A qualitative study explored the meaning of resilience to psychosis symptoms amongst people with a diagnosis of schizophrenia (Sumskis, Moxham, & Caputi, 2016). The experience of the symptoms associated with a diagnosis of schizophrenia was conceptualised as a dynamic process including challenge and support. In particular, participants discussed eleven elements which they perceived as challenging or supportive (i.e., family, work, medication, mental and physical health, mental health professionals, stress, stigma, lifestyle, stimulation, and social networks) which were crucial for understanding resilience in the context of the experience of the diagnosis. Resilience was found to emerge from the opposing tension between challenging and supportive elements and to be rooted in an attitude to strive to take control of and recover from the experiences involved in a diagnosis of schizophrenia (Sumskis et al., 2016). A qualitative study examining resilience to negative stressors in people with a diagnosis of schizophrenia and suicidal

experiences reported a range of external (i.e., social support, social reciprocity, and religious coping) and internal (i.e., passive acceptance, resistance, and cognitive and emotional coping techniques) factors perceived by people as fostering resilience (Gooding et al., 2017). The two studies converge on findings relating to social support from family and professionals as an important resilience factor. However, the two studies examined resilience in relation to mental health (i.e., impact of psychosis) or general negative stressors in people with a diagnosis of schizophrenia, but not to suicidal experiences, specifically.

These findings may have implications for the understanding of the relationships between psychological resilience and suicidal thoughts and behaviours in people with a diagnosis of schizophrenia. However, research in this area lacks consistent, literature-informed definitions of resilience and focus on suicidal experiences and individual perceptions of these in relation to resilience. Furthermore, the mechanisms by which resilience operates and weakens the relationships between suicide precursors and suicidal thoughts and behaviours, specifically in people with non-affective psychosis or a diagnosis of schizophrenia have not been systematically investigated in appropriately powered studies using convergent methodologies including longitudinal designs.

1.7. Summary

There are four main issues that future studies need to address in order to develop the current understanding of psychological resilience to suicidal experiences. First, mental health research is dominated by investigations of risk and individual vulnerability (Rutten et al., 2013). There is an identified need for a paradigm shift from a focus on risk factors or individual weaknesses that lead to maladaptive outcomes, to the identification of individual strengths or assets which may help people recover and develop in the face of adversity (Benson, 1997; Gooding & Harris, 2020; Richardson, 2002). A large number of studies have focused on identifying suicide risk factors and strategies to reduce them in order to prevent suicide death (De Hert, McKenzie, & Peuskens, 2001; Hawton et al., 2005; Palmer et al., 2005), leaving resilience factors largely neglected (Malla & Payne, 2005; McLean et al., 2008; Sher, 2012; 2019). Although identifying multiple risk factors is essential, it does not provide a comprehensive understanding of the mechanisms underlying suicidal thoughts and behaviours in people with a diagnosis of schizophrenia and non-affective psychosis (Laursen, Nordentoft, & Mortensen, 2014; Nock et al., 2008). As suicide is one of the main preventable deaths, it is important to understand how these mechanisms operate, and to

delineate mechanisms which converge and differ across mental health problems, in order to devise effective suicide prevention strategies. Reducing suicide rates is a major objective of cross-government policies globally (Department of Health, 2019). Alleviating suicide risk factors, while simultaneously nurturing resilience, has been argued to be an important endeavour in suicide research (Chang, 2002; Goldsmith, Pellmar, Kleinman, & Bunney, 2002; Greening & Stoppelbein, 2002; Hirsch, Wolford, LaLonde, Brunk, & Morris, 2007; Johnson et al., 2010a; 2010b; Youssef, Green, Beckham, & Elbogen, 2013). These gaps in the literature were addressed by a systematic literature review and a qualitative study assessing factors that contribute to psychological resilience to suicidal thoughts and behaviours (Chapters 3 and 4) and a longitudinal study examining resilience mechanisms that may operate as buffers of suicidal thoughts and behaviours (Chapter 6).

Second, the vast majority of published studies have focussed on exploring resilience to suicidal thoughts and behaviours in non-clinical samples (e.g., students, children, individuals with homosexual orientation; Everall, Altrows, & Paulson, 2006; Fenaughty & Harre, 2003; Gallagher & Miller, 2018; Rios-Risquez, Garcia-Izquierdo, de los Angeles Sabuco-Tebar, Carrillo-Garcia, & Martinez-Roche, 2016), or individuals' resilience to the impact of mental health problems (e.g., depression, PTSD, schizophrenia; Edward, 2005; Streb, Haller, & Michael, 2014; Sumskis et al., 2016). The only exception is Johnson et al.'s (2010b) cross-sectional study of the role of positive self-appraisals in countering suicidal thoughts and acts in people with a diagnosis of schizophrenia. This shows that research exploring the role of psychological resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis are scarce. This research gap was addressed in the qualitative and quantitative studies described in this thesis (Chapters 3 to 6).

Third, the extant literature has explored resilience in a range of negative adverse events (e.g., experiencing severe mental health problems; burnout in students). However, research on resilience, specifically to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis is sparse. The abovementioned qualitative studies (i.e., Gooding et al., 2017; Gooding et al., 2013; Sumskis et al., 2016) did not explore individual experiences of resilience to suicidal thoughts and behaviours. Therefore, there is a need for qualitative accounts of individual experiences of resilience to suicidality in people with a diagnosis of schizophrenia or non-affective psychosis. This gap in the literature was addressed by two

qualitative studies in this thesis examining individual perspectives and experiences of psychological resilience, psychosis and suicidal thoughts and behaviours (Chapters 4 and 5).

Fourth, a particular question that future research has to address is whether perceptions of psychological resilience are different depending on the individual, their situation and/or their mental health problems. Furthermore, there is a need to identify which particular factors may make certain people with schizophrenia, but not others, resilient when experiencing suicidal thoughts and behaviours. There is a lack of longitudinal studies examining how resilience can develop over time and affect the relationships between precursors of suicide (e.g., hopelessness, defeat, entrapment) and suicidal thoughts and behaviours. Understanding this temporal relationship may help elucidate the mechanisms by which resilience may operate to buffer against suicidality which, in turn, would help refine the protective factors proposed by contemporary models of suicide and further elaborate contemporary models of psychological resilience to suicidal experiences in people with severe mental health problems. This question was addressed in a longitudinal study investigating the relationships between psychological resilience, psychosis and suicidal thoughts and behaviours in people with schizophrenia and non-affective psychosis (Chapter 6).

CHAPTER 2

2. Methodological Considerations

2.1. Overview

The methodological designs, analyses and measures employed are described within each empirical chapter of this thesis in the context of published papers (Chapters 3, 4 and 5), or papers submitted for publication (Chapter 6). The current chapter provides an overview and discussion of the mixed methods approach used in this thesis, the details of which are beyond the scope of each empirical chapter. In particular, this chapter focuses on critical evaluation of: i. participant recruitment procedures, ii. literature review methods, iii. qualitative methods, iv. quantitative methods, v. choice of quantitative measures, and vi. ethical considerations.

2.2. Service User and Public Involvement

Public involvement in research has been defined as research that is conducted with or by members of the public (INVOLVE, 2020). Routinely involving service users and the public in research, beyond mere study participation, is deemed a good research practice and is recommended by research funders (Department of Health, 2001; Ennis & Wykes, 2013; Fox, 2017; Levin, 2004). The aim of involving service users in decisions about the design, implementation, and/or dissemination of research is to improve the quality and feasibility of mental health research, and, importantly, to facilitate the transition of research findings into clinical practice (Brett et al., 2012; Ennis & Wykes, 2013). Service user involvement is particularly important in the early stages of research planning to help identify relevant research questions and methods to address them (Brett et al., 2012), and is particularly valuable when designing experience-type qualitative research (Staley, 2009).

From service users' point of view, promoting social inclusion and obtaining a sense of wellbeing at the individual level have been highlighted as some of the benefits of being involved in research (Minogue, Boness, Brown & Girdlestone, 2005; Tait & Lester, 2005; Thornicroft & Tansella, 2005). It is not common to report the particular benefits of involving service users and members of the public in different aspects of research (Domecq et al., 2014; Staniszewska et al., 2017). However, involving people with lived experiences in decisions about the design of empirical studies has been shown to increase participant recruitment and retention rates (Domecq et al., 2014), and improve

the quality, ethical conduct, value and relevance of research (Edelman & Barron, 2016; Staley, 2009).

A service user reference group (SURG) consisting of individuals with lived experiences of suicidal thoughts and behaviours was involved in the design of three empirical studies in this thesis (Chapters 4, 5 and 6). During consultation meetings, their advice was sought regarding the research questions and the overall logistical aspects of the study protocols, for example, methods for effectively managing potential participant distress during assessment. The design and content of the participant information sheets, consent forms, and information leaflets were presented and discussed during these meetings. In addition, the interview topic guide used in Chapters 4 and 5 was discussed and piloted with members to ensure the questions were well-timed, worded appropriately and sensitively, and relevant to the study aims (Brett et al., 2014). The quantitative measures used in Chapter 6 were also piloted with members and their advice on the appropriateness and specific order of administering them was sought. For example, since suicide is a sensitive topic for some participants, members suggested presenting the suicide measures before the resilience measures to mitigate potential distress. The study materials were adapted following their feedback.

It was initially planned for KH to feed back to the SURG the impact of the consultation on the studies and present the findings. However, this part of SURG involvement was not held due to the social distancing rules and group meeting restrictions implemented during the COVID-19 pandemic. Instead, KH contacted the SURG members via e-mail and provided them with the findings of the empirical studies described in Chapters 4 to 6 of this thesis, offered an opportunity to further discuss the studies over the phone or e-mail, and thanked them for their involvement throughout the PhD project.

2.3. Mixed Methods Research Design

A mixed methods research design was used to address the overarching aim of this thesis which was to understand the impact of psychological resilience on suicidal thoughts and behaviours in people with schizophrenia or non-affective psychosis. There is a body of research into resilience which has used quantitative and qualitative methodological designs (McLean et al., 2008; Santos, 2012). However, these methodological designs have often been implemented independently.

A qualitative research paradigm includes a process of inquiry based on distinct methodologies that explore social or individual problems in a natural setting, whereby a researcher attempts to understand and interpret phenomena in relation to the meanings people bring to them, in order to produce a holistic, detailed account of individuals' views, feelings and experiences (Creswell, 1994; Denzin & Lincoln, 1994). On the other hand, a quantitative research paradigm includes a process of inquiry focused on explaining social or individual problems by measuring and analysing numerical data using surveys, experiments and statistical procedures, in order to determine the generalisability of the phenomena of interest (Creswell, 1994; Gay & Airasian, 2000). Although the two paradigms adopt different methods of inquiry entailing different data collection and analysis approaches, both share an aim to build knowledge and understand issues pertaining to specific phenomena which makes their integration possible (Gall, Gall, & Borg, 1999; Punch, 1998; Tashakkori & Teddlie, 1998). The integration of qualitative and quantitative approaches in research is defined as a mixed methods paradigm (Tashakkori & Teddlie, 1998).

A mixed methods design can potentially reconcile the methodological strengths and challenges inherent in qualitative and quantitative designs (Brannen, 2005; Creswell & Plano Clark, 2011; Pope, Mays, & Popay, 2007). Qualitative and quantitative approaches to research can be used to corroborate, elaborate, complement, or contrast the data obtained from each method alone. Therefore, a mixed methods approach has the potential to enhance the analysis and increase the scientific rigor and validity of research findings (Wisdom & Creswell, 2013).

Definitions of a mixed methods design are varied but, generally, it combines qualitative and quantitative research with the aim of achieving corroboration and a detailed understanding of phenomena (Johnson, Onwuegbuzie, & Turner, 2007). Researchers may adopt mixed methods designs within a single study (see Huber et al., 2016; Johnson et al., 2007; Tauscher & Laudien, 2018). However, it has been argued that the application of a mixed methods design should be extended beyond single studies and include programmes of research (Johnson et al., 2007). This allows for a detailed examination and understanding of complex issues through integration of multiple research designs over the trajectory of a research program (Simonovich, 2017). Consistent with Johnson et al.'s definition (2007), this thesis adopted a mixed methods research design.

Mixed methods designs are appropriate for examining complex processes (Greene & Caracelli, 1997), such as those underpinning psychological resilience and suicidal thoughts and behaviours,

which makes this approach particularly suitable for addressing the overarching aim of this thesis. It is important to take into account the increased resources, data integration complexity (Wisdom & Creswell, 2013) and theoretical and methodological issues when using a mixed methods design across a program of research (Hammarberg, Kirkman, & de Lacey, 2016). A pragmatic stance was adopted which is argued to be compatible with a mixed methods research design (Hall, 2013; Morgan, 2007). Pragmatism refers to finding practical solutions to real-world problems (Feilzer, 2010). Therefore, the choice of methodologies used in this thesis was based on their ability to most optimally address the research questions (Creswell, 2014; Hall, 2013).

Qualitative and quantitative research designs were integrated using a sequential exploratory approach (Creswell & Plano Clark, 2011; Johnson et al., 2007; Pluye & Hong, 2014; Tashakkori & Teddlie, 2010). This approach includes three stages. In the first stage, a qualitative study is conducted, and hypotheses are generated. In the second stage, the quantitative component is deployed to test the hypotheses generated in the first stage. In the third stage, the qualitative and quantitative results are integrated (Creswell & Plano Clark, 2011). Integrating data from qualitative and quantitative studies highlights the value of a mixed methods program of study (Berman, 2017). Data integration can be achieved at a design level, methods level or interpretation level (Creswell & Plano Clark, 2011). In this thesis, data were integrated at a design level, whereby the results from the literature review and qualitative studies were used to develop the quantitative study. In addition, integration at an interpretation level connected the qualitative and quantitative data by identifying converging and diverging points between the two to obtain an overall understanding of the findings. The integrated data were interpreted within the overarching aim of this thesis which is to understand psychological resilience to suicidal thoughts and behaviours in people with schizophrenia and non-affective psychosis.

The challenges of using an exploratory sequential design relate to the considerable time it requires to implement, avoiding bias in the quantitative stage following the qualitative stage, and interpreting how the quantitative results build on the initial qualitative results (Creswell & Plano Clark, 2011). However, this approach was considered most useful to address the overarching aim of the current thesis for three reasons (Creswell & Plano Clark, 2011). First, the approach allows the identification of important constructs to be examined in subsequent quantitative studies. For example, the studies described in Chapters 3, 4 and 5 of this thesis identified specific resilience to suicide (i.e., self-appraisals, social support) and psychosis factors (i.e., delusions, hallucinations, distress)

which were included in the model tested in the longitudinal study described in Chapter 6. Second, it allows the development of research questions based on qualitative findings that cannot be addressed using further qualitative methodological designs alone. Third, qualitative and quantitative data are collected and analysed at separate points which allows time for rigorous data integration and interpretation and may minimise the issue of potential bias in the quantitative stage (see section 2.5.2.1 for a discussion of trustworthiness in qualitative research).

2.4. Participants and Recruitment Strategy

The strategies for recruiting participants in the studies of this thesis are briefly described within each chapter (Chapters 4, 5 and 6). However, since this thesis is presented in alternative format, the chapters are written for submission to specific journals and details regarding the recruitment of participants are limited. This section provides a detailed description of the population and recruitment strategies adopted.

2.4.1. Focus on schizophrenia and non-affective psychosis

It is estimated that around 90% of all suicide fatalities are by people experiencing severe mental health problems, such as schizophrenia (Hawton & Van Heeringen, 2009; Windfuhr & Kapur, 2011). People with a diagnosis of schizophrenia or non-affective psychosis are at a significantly greater risk of experiencing suicidal thoughts, behaviours and suicide death (Bolton et al., 2007; Bushe et al., 2010; Pompili et al., 2007). Therefore, the focus of this thesis is on understanding the impact of psychological resilience on suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or other non-affective psychosis.

Diagnoses of schizophrenia and non-affective psychosis were operationalised uniformly across all empirical studies described in this thesis (Chapters 3, 4, 5 and 6). For example, people who had a primary diagnosis of schizophrenia or non-affective psychosis, and lifetime experiences of suicidal thoughts and/or behaviours were eligible to participate in the studies. The diagnosis of participants taking part in the empirical studies of this thesis was ascertained by report from a member of their mental health care team (e.g., care coordinator). The prevalence of psychiatric comorbidity in this population is high (Buckley, Miller, Lehrer, & Castle, 2009). Therefore, people with comorbid mental health problems, such as anxiety, depression, substance misuse, obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD) or personality disorders were also eligible to participate, as long as their primary diagnosis was schizophrenia or other non-affective psychosis.

Previous research has reported a high prevalence of depression in people with a schizophrenia diagnosis or non-affective psychosis (Chemerinski, Bowie, Anderson, & Harvey, 2008; Upthegrove, Marwaha, & Birchwood, 2017). Therefore, it is important to account for the impact of depression on the study outcomes. For example, anhedonia (i.e., the inability to experience pleasure; Gard, Kring, Germans Gard, Horan, & Green, 2007) can be commonly experienced in depression and is also a negative symptom of psychosis. Thus, anhedonia may be considered a transdiagnostic factor, whereas specific sub-types of anhedonia, such as anticipatory (relating to experiencing pleasure from future events; Li et al., 2019), consummatory (relating to experiencing pleasure from current events; Li et al., 2019), and motivational anhedonia (relating to decreased motivation to participate in pleasurable activities; Der-Avakian & Markou, 2012) may be more specific (Lambert et al., 2018; Upthegrove et al., 2017). All analyses in the longitudinal empirical study described in Chapter 6 of this thesis statistically controlled for the impact of depression. Considering the prevalence of psychiatric comorbidity in people with a diagnosis of schizophrenia and non-affective psychosis, it is important to investigate transdiagnostic and psychosis-specific issues in the pathways to suicidal thoughts and behaviours (Bolton et al., 2007).

2.4.2. Participant sampling and recruitment strategy

Participants from a target population of people with a diagnosis of schizophrenia or non-affective psychosis, who had lifetime experiences of suicidal thoughts, plans, urges and attempts were recruited into the empirical studies described in Chapters 4, 5 and 6 of this thesis. Maximum variation purposive sampling (Baum, 2003; Patton, 2002) was used to obtain an account of a wide range of experiences and perspectives. Contrary to random sampling, whereby each individual within a specified population has an equal opportunity of being selected (Starnes & Tabor, 2018), in purposive sampling, participants are selected based on their relevant knowledge and experience (Braun & Clarke, 2013). This approach to sampling is particularly useful in achieving maximum variation of experiences and relevant understanding of a specific topic (Baum, 2003; Patton, 2002; Peters, 2010). It has been argued that including individuals with a wide range of experiences and opinions will make their combined responses more representative of the population (Baum, 2003). Therefore, recruiting people with diverse experiences of psychosis (e.g., delusions, hallucinations) and suicidality (e.g., suicidal thoughts, urges, self-harm, suicide plans, suicide attempts) would promote greater understanding of pertinent issues, and of similarities and differences between participants. This observation can be applied to qualitative and quantitative studies (Mellinger & Hanson, 2017).

Certain social groups, such as those with different sexual orientation or ethnic origin, continue to be excluded from research for various reasons (e.g., social or physical location, discrimination, stigma, mistrust; Bailey, 2008; Bonevski et al., 2014; Cundiff, 2012; Liamputtong, 2007; Tourangeau, Edwards, Johnson, Wolter, & Bates, 2014). For example, gay or lesbian people may be more challenging to identify because their experiences are not recorded or reported due to social stigma. Furthermore, inequalities in accessing mental health services across different minority groups is an issue in care provision within and between countries (Edge & Lemetyinen, 2019; Grey, Sewell, Shapiro, & Ashraf, 2013) which can subsequently contribute to the underrepresentation of certain minority groups in research. Using purposive sampling has been argued a useful way to including ethnic minority communities in research studies (Auerswald et al., 2004; Lie, 2006). Therefore, purposive sampling was considered an effective method of recruiting individuals to the empirical studies described in Chapters 4 to 6 of this thesis.

The participants in the three studies described in this thesis (Chapters 4, 5 and 6) were recruited by the author (KH) or research assistants on a clinical trial (see subsection 2.4.2.1). In all recruitment phases, participants were adults with a diagnosis of schizophrenia or non-affective psychosis and lifetime experiences of suicidal thoughts and/or behaviours. The number of participants recruited in each empirical study is presented in Table 2.1.

Table 2.1. *Number of participants recruited across the three empirical chapters in this thesis.*

	Chapter 4 Qualitative study 1	Chapter 5 Qualitative study 2	Chapter 6 Longitudinal study
Number of participants recruited	20	20*	100
Number of participants excluded from the data analyses	0	0	1
Total number of participants included in the data analyses	20	20*	99

Note: *The same 20 individuals participated in the qualitative studies described in Chapters 4 and 5.

2.4.2.1. First recruitment phase

The first recruitment phase included individuals participating in the qualitative empirical studies presented in Chapters 4 and 5. The procedure comprised three stages, including: i. identification of potential participants, ii. providing information to potential participants, and iii. gaining participant

consent. Of note, the same sample of 20 individuals and the same set of interview transcripts were used for both empirical studies.

The identification of potential participants (stage i) involved four recruitment paths. The first recruitment path was via NHS organisations, such as mental health trusts (i.e., Greater Manchester Mental Health NHS Foundation Trust, Pennine Care NHS Partnership Trust, Lancashire Care NHS Foundation Trust, and North West Boroughs Healthcare NHS Trust). The second recruitment path was via third-sector, non-NHS organisations, such as mental health charities (e.g., Mind) and support groups (e.g., Hearing Voices Network). The third recruitment path was by self-referral (i.e., by potential participants contacting KH directly). The fourth recruitment path was via a clinical trial investigating the effectiveness of a psychological talking therapy for people who experience or have experienced psychosis and suicidal thoughts and/or feelings (i.e., Cognitive AppRoaches to coMbatting Suicidality (CARMS); ISRCTN: 17776666; Gooding et al., 2020).

Recruitment materials (i.e., study posters and participant information sheets; see Appendix B) were displayed in public areas, such as waiting rooms, within mental health trusts and third-sector organisations. These materials were also used to enable individuals to request that a member of their mental health care team (e.g., care co-ordinator) refers them to the research project, or alternatively, to self-refer. Mental health professionals identified potential participants, obtained their consent to contact, explained the study to them, as described in the participant information sheet, and ascertained whether they could provide KH with information relating to the participant's eligibility for the study and contact details. Once this was established, KH contacted the potential participant at least 24 hours after the participant received the information sheet to give them an opportunity to decide whether they were interested in taking part (stage ii). During this contact, special attention was paid to the nature of the study. If the potential participant was interested in taking part in the study, KH arranged a time and place (e.g., at their home, in a private room at the University of Manchester, health centres, charity or Trust premises), convenient to the participant, to meet to complete the interview.

At the start of the interview, KH verbally reminded the participant of the information provided in the participant information sheet and the consent form. Participants were given an opportunity to ask questions about the study, prior to signing the consent form (stage iii). Prior to taking consent, KH attempted to ensure that no sense of coercion was perceived by the potential participant, that they fully understood what the study entailed, what their participation consisted of, who may have

access to their data, how data would be used and reported, and how the final results of the study would be made available. Once the participant had signed the consent form, data collection for the study commenced. If KH suspected that a participant's ability to provide informed consent had been compromised (e.g., by their mental health, substance use), a second opinion was sought from her clinical supervisor (GH) and the participant's mental health care team. However, such circumstances did not occur. At the end of the studies described in Chapters 4 and 5 of this thesis, all participants were entered in a prize draw to win a £20 shopping voucher.

2.4.2.2. Second recruitment phase

The second recruitment phase included participants from the empirical study presented in Chapter 6. Participant recruitment followed the same procedures as described in the first recruitment phase. However, in this second recruitment phase, participants completed a set of questionnaires and a structured clinical interview measuring psychosis symptom severity at two separate time points, namely, baseline and three months later.

The individuals in the first recruitment phase were asked whether they would be interested in taking part in and receiving information about a future study, described in Chapter 6 of this thesis. Fifteen participants agreed and also took part in the quantitative study. There were 85 additional participants in this second phase and 15 from the first recruitment phase which comprised a total sample of 100 individuals. KH contacted by telephone those who were interested and invited them to take part in the second study which commenced between four and 11 months after the studies described in Chapters 4 and 5 of this thesis. All participants were reimbursed £10 for completing the baseline and the three-month follow-up assessments.

There is a debate over the acceptability and implications of offering payments (e.g., gift vouchers, monetary reimbursement) to research participants (Health Research Authority (HRA), 2014; Russel, Moralejo, & Burgess, 2000). For example, participant payment can be considered problematic as it can be coercive or exploitative, especially when involving vulnerable individuals who may misconceive the therapeutic benefits of the research (Head, 2009; HRA; 2014). Conversely, payments can have a positive impact on response rates; they are a form of gratitude expression for participants' time, and a way of equalising potential power imbalance between participants and researchers or professionals (Head, 2009; HRA 2014). The HRA (2014) has issued an ethics guidance for payments and incentives in research stating that offering payment to

research participants is not unethical, as it can reduce the possibility for clinical treatment misconceptions and power imbalance. Considering this guidance, it was deemed appropriate to offer payment to the participants taking part in the empirical studies described in Chapters 4, 5 and 6 of this thesis.

2.4.3. Establishing capacity to consent

Involving participants who may lack capacity to provide consent requires awareness of the implications and procedures surrounding informed consent in research studies. The recruitment materials (i.e., consent forms, information sheets) used in the empirical studies described in Chapters 4, 5 and 6 of this thesis were developed with and checked by SURG members to ensure accessibility and legibility. Verbal explanation of what participating in the studies would entail was provided by KH to all potential participants, prior to obtaining their written informed consent. The procedure for obtaining written consent was carried out by KH.

Since ability to provide informed consent was one of the inclusion criteria for participating in the empirical studies, it was not anticipated that any of the potential participants would have cognitive difficulties that would prevent them from providing informed consent. In order to ascertain individual capacity to consent, KH adhered to the Mental Capacity Act (2005) which assumes individuals have capacity to consent, unless a mental health professional determines otherwise. Such cases did not occur during the recruitment or assessment phases of research. However, in circumstances of suspected lack of capacity to provide informed consent, the following assessment would have been implemented (Mental Capacity Act, 2005):

Does the person have an impairment of the mind or brain, or is there some sort of disturbance affecting the way their mind or brain works?

- Does that impairment or disturbance mean that the person is unable to make the decision in question at the time it needs to be made?

- Does the person have a general understanding of what decision they need to make and why they need to make it?

- Does the person have a general understanding of the likely consequences of making, or not making, this decision?

- Is the person able to understand, retain, use and weigh up the information relevant to this decision?

- Can the person communicate their decision (by talking, using sign language or any other means)? Would the services of a professional (such as a speech and language therapist) be helpful? (Mental Capacity Act, 2005)

If a participant was deemed unable to provide informed consent, their participation in the studies would have been postponed to a later date, when capacity was regained. This would be established through communication with their mental health team and KH's clinical supervisor.

2.5. Research Designs Used in the Thesis

This thesis describes four empirical studies using qualitative and quantitative research designs (see Table 2.2 for an overview of the empirical studies). Each empirical chapter of this thesis (Chapters 3, 4, 5, and 6) briefly describes the methodological and analytical approaches employed. However, since these chapters are written for submission to specific journals, details regarding these approaches are limited. This section provides a detailed description and evaluation of the methodological and analytical approaches adopted in the empirical studies described in this thesis (Chapters 3, 4, 5 and 6).

Table 2.2. *Overview of the empirical studies described in each chapter of this thesis.*

Chapter	Research design	Research aims	Analytical approach
3	Systematic literature review.	Appraised the empirical evidence for psychological factors which confer resilience to suicidal thoughts and behaviours, and categorised psychological factors into broader psychological constructs which characterise resilience. Findings informed the design of subsequent studies.	PRISMA guidelines Moher, Liberati, Tetzlaff, & Altman, 2009).
4	Qualitative semi-structured interview.	Investigated individuals' perceptions of psychological factors which confer resilience to suicidal thoughts and behaviours.	Inductive Thematic Analysis (TA; Braun & Clarke, 2006).
5	Qualitative semi-structured interview.	Investigated the perceived impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with these experiences.	Inductive Thematic Analysis (TA; Braun & Clarke, 2006).
6	Quantitative longitudinal.	Hypothesised that: i. defeat/entrapment and hopelessness would lead to suicidality, ii. psychosis	Moderated mediation analysis.

symptoms and distress would amplify the strength of this relationship, and iii. psychological resilience would attenuate the strength of this relationship.

2.5.1. Literature review methods

This section provides an overview of literature review approaches and a rationale for the approach adopted in Chapter 3 of this thesis. The literature review aimed to examine the extant evidence for psychological factors which confer resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis, and to categorise these psychological factors into broader constructs which characterise psychological resilience (see Table 2.2 for an overview of the empirical studies).

Previous literature reviews have primarily focused on identifying risk factors for suicide in people with a diagnosis of schizophrenia (Hawton et al., 2005; Hor & Taylor, 2010; Pompili et al., 2007). Only one review has examined psychological factors which may confer resilience to suicidality, specifically in people with a diagnosis of schizophrenia or non-affective psychosis (Ventriglio et al., 2016). The review solely included participants experiencing first-episode psychosis. Furthermore, the methods for identifying studies in that review were not systematic which may have resulted in omission of relevant studies. Therefore, it was important to conduct the systematic literature review described in Chapter 3 to obtain an understanding of the concept of psychological resilience to suicidality, specifically, in individuals with a diagnosis of schizophrenia or non-affective psychosis, which would inform the research questions of the subsequent empirical studies described in this thesis (Chapters 4, 5 and 6).

A literature review is an empirical study which aims to search, synthesise, critically evaluate, and identify gaps in the available knowledge relating to a particular research question (Hart, 2018). There are several approaches to reviewing the literature, including systematic, narrative, meta-analysis and meta-synthesis (Cronin, Ryan, & Coughlan, 2008; Green, Johnson, & Adams, 2006).

Systematic literature reviews use an explicit and rigorous approach to literature selection and synthesis to integrate the knowledge of a body of research on a specific research question and identify relationships between studies (Green et al., 2006; Polit & Beck, 2006). Systematic literature reviews can record effect sizes on a specified measure, report summary statistics, or both. The aim

of systematic reviews is to provide an overview, as comprehensive as possible, of all the literature relating to a particular research question. As the review is structured around a specific research question, procedures that determine if a study should be included are developed and implemented (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). The process of synthesising information from individual studies involves a detailed summary and critique of the findings which are identified systematically. Because of the systematic methodology adopted, systematic reviews are considered rigorous and reliable (Green et al., 2006).

Narrative literature reviews provide a critical summary of selected, relevant resources, the selection criteria for which are not always specified (Green et al., 2006; Oxman, Cook, & Guyatt, 1994). The aim of a narrative review is to provide an overview, highlight important research areas, and identify gaps in a body of knowledge. It is useful in refining and determining research questions. The lack of explicit study selection criteria leads to a biased review (Green et al., 2006; Oxman et al., 1994). However, narrative literature reviews can be systematic in the method of identifying relevant studies.

A meta-analysis uses standardised statistical techniques to systematically assess and integrate the results of studies (Cronin et al., 2008). Using statistical methods is particularly useful when reviewing similar studies where generalisation to the wider population may be prevented due to small sample sizes (Green et al., 2006). In order to effectively compare all studies, it is important that they are similar in design and methods which can be challenging in psychological research (Lau, Ioannidis, & Schmid, 1998). A benefit of this approach is the high statistical power which provides a robust summary of the evidence and generalisable conclusions. Due to the variability of research methodologies used in the studies included in the literature review described in Chapter 3 of this thesis, a meta-analysis was not considered appropriate.

A meta-synthesis integrates the findings of qualitative studies addressing a specific research question. The aim is to analyse and synthesise the main themes of each study, in order to provide new concepts and interpretations (Cronin et al., 2008; Polit & Beck, 2006).

In this thesis, a mixed approach encompassing systematic and narrative methods of reviewing the available empirical evidence was deemed most optimal in addressing the research question across studies with varying designs and methodologies (Harden, 2010; Pope, Mays, & Popay, 2007). In particular, a systematic approach to searching and identifying relevant studies was used in

combination with a narrative approach to appraising and synthesising the findings of qualitative, quantitative, and mixed methods studies. This mixed approach comprised five steps to ensure rigour of the study selection and appraisal procedures.

First, a comprehensive search strategy was developed which was informed by theory and the existent psychological literature (Johnson et al., 2008; Joiner, 2005; O'Connor, 2011; Williams, 1997). Second, the reference lists of included studies in the review were hand searched for additional potentially relevant studies.

Third, the quality of included studies was evaluated using relevant quality assessment tools for studies using qualitative and quantitative research methods. Quality assessment is considered a critical part of systematic literature reviews (Liberati et al., 2009). However, there is no consensus regarding the methods or most appropriate tools for conducting quality appraisal in literature reviews (Garside, 2014; Katrak, Bialocerkowski, Massy-Westropp, Kumar, & Grimmer, 2004; Mertz, 2019). When choosing a quality assessment tool, a careful consideration of its validity and reliable application across studies is necessary (Katrak et al., 2004). Quality appraisal was conducted by KH and an independent researcher who rated 10% of the included papers. Discrepancies between their scores were discussed. Relevant items from the Effective Public Health Practice Project (EPHPP) tool for quantitative studies (National Collaborating Centre for Methods and Tools, 2008), the Quality Assessment Tool for observational cohort and cross-sectional studies (U.S. Department of Health & Human Services, n.d.), and the Walsh and Downe (2006) criteria for appraising qualitative studies were used in the development of the new, hybrid quality assessment tool. Two additional items were developed which probed whether the research questions of the studies were based on theory and whether the design permitted causal inferences to be made. The new tool contained 10 items for quantitative and mixed-methods studies, nine of which were applicable to qualitative studies. A 3-point scale was adopted (0=Not at all; 1=Moderately; 2=Very much) in accord with the EPHPP tool (see Appendix F).

Fourth, an independent researcher screened 10% of the potentially relevant studies against the devised eligibility criteria. Fifth, the PRISMA guidelines were followed to ensure rigour of the literature search and screening processes (Moher et al., 2009). The exclusion of studies in the grey literature is a limitation of the review which potentially restricts the scope of the findings. However, including studies from the grey literature in reviews has been criticised for the lack of scientific rigour (Campanario, 1998).

2.5.2. Qualitative methods

This section provides an overview of qualitative research designs and a rationale for the qualitative design used in the empirical studies presented in Chapters 4 and 5 of this thesis. The empirical study described in Chapter 4 aimed to investigate individuals' perceptions of psychological factors which confer resilience to suicidal thoughts and behaviours. The empirical study described in Chapter 5 aimed to investigate the perceived impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with these experiences (see Table 2.2 for an overview of the empirical studies).

Although there is available qualitative evidence on the role of psychological resilience in countering the impact of adverse life events and mental health problems on individuals' wellbeing (Bozikas et al., 2016; Gooding et al., 2017; Sumskis et al., 2016), no studies, to this date, have examined the experiences of psychological resilience to suicidal thoughts and behaviours, specifically in people with a diagnosis of schizophrenia or non-affective psychosis. For this reason, an exploratory approach to understanding experiences was necessary. Qualitative methodological designs can be exploratory in nature and may not require a pre-existing theory or empirical evidence to study and interpret individual perspectives, meanings, values, experiences, opinions and beliefs (Creswell, 2014; Hammarberg et al., 2016; Mack, Woodsong, MacQueen, Guest, & Namey, 2005). The use of qualitative designs is advantageous where understanding of complex individual experiences, attitudes and perceptions on a certain topic is of main importance (Tolley, Ulin, Mack, Robinson, & Succop, 2016). It has been argued that qualitative methodological designs are particularly relevant to resilience research for three reasons (Ungar, 2003). First, they enable the exploration of the diversely defined resilience concept and resilience processes. Second, they avoid generalisation of the resilience concept. Third, they consider minority viewpoints which account for unique, localised experiences (Ungar, 2003). Therefore, a qualitative design was considered most appropriate to address the research questions and provide initial knowledge on a complex topic such as resilience to suicidality and psychosis.

Three approaches to analysing qualitative data were considered to address the research aims in the studies described in Chapters 4 and 5 of this thesis, namely, grounded theory, interpretative phenomenological analysis (IPA) and Thematic Analysis (TA; Astalin, 2013; Braun & Clarke, 2006; Creswell, Hanson, Clark Plano, & Morales, 2007; Flick, 2009). The main feature of grounded theory is the development of a theoretical model which stems from the collected data (Glaser &

Strauss, 1999). Importantly, the researcher does not have a predetermined theory in mind when developing a model, but the formulation of a theory is "grounded" in the data. This approach is influenced by pragmatism (Bacon, 2012; Bryant, 2009; Charmaz, 2014), which would make it suitable for implementing in the studies described in Chapters 4 and 5, as well as the overarching stance of this thesis (see section 2.3). However, grounded theory has been criticised for its multitude of rules for application that render its use challenging and requiring highly skilled researchers (Timonen, Foley, & Conlon, 2018). Furthermore, it does not account for researchers' preconceived ideas, social embeddedness or agency that can impact on data collection and interpretation (Glaser & Strauss, 1967; Olesen, 2007). For these reasons, grounded theory was deemed unsuitable to address the research aims of the empirical studies described in Chapters 4 and 5.

An example of a study adopting a grounded theory approach examined the experiences of recovery following a past suicide attempt in people with depression (Chi et al., 2014). The study identified five phases of recovery, including: i. self-awareness, ii. inter-relatedness of life (i.e., acknowledging the need for support from professionals and significant others), iii. the recurring nature of emotions, iv. adjustment of behaviours and v. acceptance of life.

Interpretative phenomenological analysis (IPA) focuses on what constitutes the essence of individual experiences and perceptions of given phenomena (Astalin, 2013; Creswell et al., 2007). Unlike grounded theory, IPA aims to describe common aspects of people's experiences of a phenomenon, usually within a homogenous sample of individuals (Smith, Flowers, & Larkin, 2009). The qualitative studies described in Chapters 4 and 5 of this thesis aimed to understand the impact of psychological resilience and psychosis symptoms on suicidal thoughts and behaviours. Hence, a heterogeneous sample of people with various schizophrenia diagnoses (e.g., paranoid schizophrenia, delusional disorder) and suicidal experiences (e.g., suicidal ideation, urges, suicide attempts, plans, self-harm) was recruited in those studies.

A study adopting IPA examined young men's experiences of suicidality and early psychosis (Gajwani, Larkin, & Jackson, 2018). In particular, the study focused on the meaning of suicide attempts from the perspectives of these people. Loss of identity, an absent father, adverse early life events, social isolation, hopelessness and hope in the process of recovery were reported as important aspects of young men's experiences of suicidality and psychosis. Another example of a qualitative study using IPA investigated the perceptions of suicidal ideation in people with a

diagnosis of schizophrenia. Participants reported that feelings of inferiority, solitude and inability to relate to others increased suicidal thoughts. In contrast, relationships with significant others discouraged suicide-related behaviours (Skodlar et al., 2008). These studies provide examples of the applicability of IPA to suicide research.

The process of identifying patterns within the data in IPA and grounded theory is theoretically delimited. For instance, IPA is tied to a specific phenomenological epistemology in its aim to obtain a thorough understanding of people's everyday experiences of the studied phenomenon (McLeod, 2001; Smith, Jarman, & Osborn, 1999; Smith & Osborn, 2003). The goal of the grounded theory approach is to use the phenomena grounded in the data to develop a logical and meaningful theory (McLeod, 2001). Neither IPA, nor grounded theory, were considered appropriate as the aim of the empirical studies presented in Chapters 4 and 5 was to examine phenomena that go beyond individual experiences, as opposed to exploration of how participants are making sense of their personal circumstances or developing a theory.

Thematic analysis aims to search for patterned meaning within the dataset, in order to make sense of it and produce a meaningful description of people's experiences (Braun & Clarke, 2006; 2013). This approach involves identifying similar information from the dataset and analysing, and organising it into themes (Braun & Clarke, 2006; 2013; Guest, 2012). Themes are developed through the process of coding, whereby items in the raw data with reoccurring pattern are recognised and coded prior to interpretation (Boyatzis, 1998). The codes are systematically organised in a meaningful way which relates to the research question. This process is iterative and involves constantly going back and forth between code identification and data analysis (Braun & Clarke, 2006; 2013). Similar codes are then combined into potential themes which accurately describe broader patterns in the data. It is important to ensure that the codes are strongly related to the themes. Codes which do not fit within the original themes are recorded in order to demonstrate the richness of individual experiences. Finally, through a process of review, proposed themes are expanded or condensed, if necessary, to avoid overlap and ensure cohesion of themes (Braun & Clarke, 2006; 2013). At this stage, it is important to re-read the original dataset again to determine whether the final themes accurately reflect the data. Braun and Clarke (2006) have devised a checklist containing 15 steps for conducting TA (see Table 2.3). These steps were applied to the data analyses presented in Chapters 4 and 5 of this thesis. An example of a qualitative study adopting TA investigated the influence of resilience on negative stressors experienced by people

with schizophrenia who were feeling suicidal. Internal mechanisms, including acceptance, resistance, active responses, coupled with external factors, such as social support, social reciprocity, religion were important resilience promoting factors in the face of negative stressors (Gooding et al., 2017).

A thematic approach to analysis was deemed most suitable to address the research questions in the empirical studies described in Chapters 4 and 5 of this thesis. TA was selected over grounded theory and IPA because it is flexible and does not require a particular theoretical viewpoint to conduct the analysis (Braun & Clarke, 2006; 2013). That is, the researcher can determine the appropriate epistemological approach for the analysis. Importantly, TA is compatible with the pragmatic stance within the mixed methods design of this thesis, whereby the research question, rather than the researcher's philosophical viewpoint, informs the selection of a method (Creswell, 2014).

Thematic analysis has two disadvantages that need to be considered. First, there is an absence of clear guidelines on how to conduct it (Guest, MacQueen, & Namey, 2012; Braun & Clarke, 2006; Tuckett, 2005). However, Braun and Clarke (2006) have devised a checklist of steps to guide the analytic process (see Table 2.3). Second, because TA can be theoretically free, it can be open to multiple interpretations and opinions which may make its reliability implausible (Braun & Clarke, 2006; 2013; Guest, 2012). These disadvantages may be tackled by ensuring appropriateness of the methodology for the research question, conducting an adequate analytic process, and recognising and reflecting on researcher's influence on the analytic process (Braun & Clarke, 2006; 2013; Braun, Clarke, Hayfield, & Terry, 2019).

There are three different ways of identifying codes within the dataset in an attempt to answer the research questions in the empirical studies described in Chapters 4 and 5 of this thesis. Coding can be deductive, inductive or hybrid (Frith & Gleeson, 2004; Hayes, 1997; Hyde, 2000). Deductive coding is usually influenced by an existing theory or framework which guides the analysis. For example, the researcher may approach data analysis with a predetermined concept or codes derived from previous research. Inductive coding is more data, rather than theory oriented, and data analysis evolves through subsequent coding of data. Hybrid coding integrates both inductive (data-driven) and deductive (theory-driven) levels of coding (Fereday & Muir-Cochrane, 2006). The empirical studies described in Chapters 4 and 5 attempted to encompass diverse experiences and perspectives, therefore, inductive coding was adopted. Furthermore, due to the broadly defined

resilience concept and sparsity of studies examining individual experiences of psychological resilience, psychosis symptoms, and suicidal thoughts and behaviours, an inductive approach to coding was considered most optimal in addressing the research questions in Chapters 4 and 5 of this thesis.

Table 2.3. *Checklist of criteria for conducting thematic analysis (adapted from Braun & Clarke, 2006).*

Process	No.	Criterion
Transcription	1.	The data have been transcribed to an appropriate level of detail, and the transcripts have been checked against the tapes for "accuracy".
Coding	2.	Each data item has been given equal attention in the coding process.
	3.	Themes have not been generated from a few vivid examples (an anecdotal approach), but instead the coding process has been thorough, inclusive and comprehensive.
	4.	All relevant extracts for all each theme have been collated.
	5.	Themes have been checked against each other and back to the original data set.
	6.	Themes are internally coherent, consistent, and distinctive.
Analysis	7.	Data have been analysed – interpreted, made sense of – rather than just paraphrased or described.
	8.	Analysis and data match each other – the extracts illustrate the analytic claims.
	9.	Analysis tells a convincing and well-organised story about the data and topic.
	10.	A good balance between analytic narrative and illustrative extracts is provided.
Overall	11.	Enough time has been allocated to complete all phases of the analysis adequately, without rushing a phase or giving it a once-over-lightly.
Written report	12.	The assumptions about, and specific approach to, thematic analysis are clearly explicated.
	13.	There is a good fit between what you claim you do, and what you show you have done – i.e., described method and reported analysis are consistent.
	14.	The language and concepts used in the report are consistent with the epistemological position of the analysis.
	15.	The researcher is positioned as active in the research process; themes do not just "emerge".

Finally, the level of TA can be semantic (explicit) or latent (conceptual; Braun & Clarke, 2006; 2013; Braun et al., 2019). In semantic analysis, themes are identified on an explicit level, across the surface of the data, without seeking for meaning beyond what a participant has said during an interview. On the other hand, latent analysis goes beyond the explicit level of understanding to explore underlying conceptualisations and assumptions (Braun & Clarke, 2006; 2013). The empirical studies described in Chapters 4 and 5 of this thesis investigated participants' perceptions of their experiences of suicidality, resilience and psychosis which were suited to a latent analysis. However, as resilience is broadly defined, a semantic level of analyses produced more descriptive

accounts of this concept. In order to understand the relationships between these complex experiences, a combination of latent and semantic levels of analysis was used.

The following procedures were followed during the coding of interview transcripts in the empirical studies presented in Chapters 4 and 5 (Braun & Clarke, 2006). Each transcript was thoroughly read and re-read, and during this process, units of text were identified which appeared to reflect similar or overlapping concepts, ideas, or experiences. These units of text were then organised into codes (see Appendix J for an example of transcript coding in NVivo data analysis qualitative software). The coding process was as thorough, inclusive, and comprehensive as possible, giving each transcript equal attention. Next, relevant interview quotes for each identified code were collated. Through an iterative process, the codes were checked against the original data set to ensure internal consistency by KH and members of the research team (SP, GH and PG). Particular attention was paid to codes which were different or deviated from the majority of identified codes. These different codes were collated, analysed and integrated together with the rest of the codes. This meant that diverse views and experiences were not omitted. Illustrative quotes have been presented in the relevant chapters.

2.5.2.1. Trustworthiness in qualitative research

Qualitative research is often criticised for biased interpretations of data, lack of rigour and poor generalisability (Anderson, 2010). Reliability refers to the exact replicability of methods and outcomes across studies (Leung, 2015). However, qualitative research is subjective by definition and precise replicability is challenging or unlikely to be desired (Leung, 2015; Peters, 2010). Devising steps to demonstrate trustworthiness and credibility and acknowledging biases in the data analytic process has been suggested (Leininger, 1994; Peters, 2010).

There are three ways of ascertaining trustworthiness and credibility of the data collection and analysis procedures in qualitative research (Dixon-Woods et al., 2006; Young, Fisher, & Kirkman, 2014), including transparency and reflexivity, member checking, and using coding frameworks. Establishing transparency in all stages of research is recognised a critical requirement of qualitative studies (Hiles, 2008). It means being explicit and open about the paradigm assumptions, biases, study procedures, data management (e.g., recording and transcription of interviews, use of software for qualitative data), writing up, presentation and dissemination of findings (Bringer, Johnston, & Brackenridge, 2004; Hiles, 2008).

Reflexivity is a process of accounting for the impact of the researcher's background, knowledge and motives on data collection and analysis (i.e., prospective reflexivity), as well as the impact of the research process on the researcher (i.e., retrospective reflexivity; Attia & Edge, 2017; Hiles, 2008; Peters, 2010). The experiences that suicide researchers encounter during, or after, interviews with suicidal participants can arguably result in increased empathy, sensitivity, creativity in the data analytic process and tolerance for the complex data (see Boden, Gibson, Owen, & Benson, 2015; Gemignani, 2011). Keeping ongoing, reflexive records of personal observations and experiences throughout the data collection and analysis process can maximise study transparency, trustworthiness and researcher awareness. This approach was adopted throughout the data collection and analysis processes in the empirical studies described in Chapters 4 and 5 of this thesis.

Member checking is another way of potentially enhancing trustworthiness of the analytic process, whereby participants check the accuracy of interpretation of the data that they provided (Doyle, 2007). It is usually conducted to obtain validation of the study results from participants, and/or to disseminate the study results (Birt, Scott, Cavers, Campbell & Walter, 2016). There is a debate on the effective integration of additional data and the ethical issues concerning member checking in qualitative research (Thomas, 2017). For instance, a potential problem relates to a member's revision of their interview transcript in a way that does not accurately reflect the data obtained during interviews. Therefore, transcripts revised by members can represent a different data source, compared to non-revised transcripts (Hagens, Dobrow, & Chafe, 2009).

Furthermore, researchers have argued that participating in member checking can be distressing for some people (Birt et al., 2016). Reading transcribed data of personal experiences can make people feel distressed or embarrassed about the ways in which they discussed certain topics (Carlson, 2010). On the other hand, this process can be therapeutic for some people through validation of their own experiences (Birt et al., 2016). Due to these potential concerns and the meeting restrictions imposed due the COVID-19 pandemic, member checking was not conducted in the empirical studies described in Chapters 4 and 5 of this thesis.

A coding framework can provide credibility and trustworthiness of the data collection and analysis procedures in qualitative studies (Nowell, Norris, White, & Moules, 2017). In the empirical studies described in Chapters 4 and 5, a coding framework was created, based on the first four interviews which contained relevant data. The codes in the framework were discussed with members of the

research team (i.e., SP, GH and PG). The triangulation of the different perspectives of the people in the research team increased the trustworthiness of the data (Peters, 2010). During the iterative process of data collection and analysis, the framework was updated and expanded in accord with the new codes emerging from subsequent analysis. The framework was finalised when no new codes were identified (see Gale, Heath, Cameron, Rashid & Redwood, 2013 for procedures for creating a coding framework).

2.5.2.2. The qualitative interview

There are two main types of interview for collecting qualitative data, comprising unstructured interviews and semi-structured interviews (DiCicco-Bloom & Crabtree, 2006; Gill, Stewart, Treasure, & Chadwick, 2008). The research questions in the empirical studies of Chapters 4 and 5 of this thesis sought to establish patterns across the dataset in relation to the impact of psychological resilience and psychosis on suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. The two types of qualitative interview were considered in the aim to address the research questions.

The unstructured interview is conducted without a predetermined framework or organisation (May, 1991). Such interviews usually begin with an overarching question which develops through discussion, depending on the respondents' unique experiences of the studied phenomenon. Due to the lack of direction and guidance from potential questions, unstructured interviews can be very time-consuming and difficult to analyse systematically (Gill et al., 2008; Patton, 2002).

Semi-structured interviews, on the other hand, consist of several open-ended questions which serve as guides to the topics to be discussed, whilst allowing for deviations, in order to explore additional phenomena of interest which may be relevant to the research question (Britten, 1999). Semi-structured interviews are often preferred by researchers due to their flexibility and the opportunity to discover information which may not have been initially considered relevant to the research question (Gill et al., 2008). This type of interview was considered most appropriate to address the research questions in the empirical studies described in Chapters 4 and 5 of this thesis.

Interview data can be generated through focus groups or individual interviews conducted face-to-face or over the telephone. The inclusion of participants with past and current experiences of

suicidality and psychosis in the studies influenced the decision to use individual, face-to-face interviews[1], as opposed to individual telephone interviews or focus groups.

While focus groups provide a means for generating discussions of sensitive issues and can result in empowerment and a sense of shared experience in participants, the group dynamics pertinent to this approach may prevent certain individuals from openly discussing topics while providing others with sufficient opportunities to speak (Bloor, Frankland, Thomas, & Robson, 2001; Gill et al., 2008; Peters, 2010). Therefore, individual interviews may help address this issue (Willig, 2013). Furthermore, participants were recruited into the studies across different regions of the North West of England. Some participants were living in supported housing or recovery services at the time of recruitment. Thus, focus groups would have incurred additional logistical and financial resources to conduct, compared to individual interviews.

Telephone interviews have been shown to increase participant privacy and decrease social pressure (McCoyd & Kerson, 2006; Sturges & Hanrahan, 2004), however, researchers can miss important non-verbal cues which compromises establishing a rapport with the participant (Novick, 2008). This is particularly important, considering the sensitive nature of the information disclosed during interviews (i.e., suicidality, psychosis) and the requirement of ethics committees for research studies to provide evidence for sufficient participant distress and safety management procedures (Petrie, Faasse, Notman, & O'Carroll, 2013). For these reasons, individual interviews, as opposed to focus groups, online or telephone interviews, were considered appropriate for the empirical studies described in Chapters 4 and 5 of this thesis. All interviews were audio recorded on an encrypted audio recording device, with participants' consent, and transcribed verbatim, whilst removing identifiable information to protect participants' confidentiality. Six interviews were transcribed verbatim by KH and 14 interviews were transcribed verbatim by an independent specialist audio transcription service which treated all information as confidential.

During semi-structured interviews, a topic guide is used to provide structure to data collection and, at the same time, allows the researcher to probe responses and obtain a more detailed account of participants' experiences, feelings and attitudes (Knox & Burkard, 2009). The topic guide used open-ended (e.g., "What was your experience like?"), as opposed to close-ended questions (i.e., that can be answered with "yes" or "no"), in order to encourage detailed responses from

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[1] Face-to-face data collection was conducted prior to the COVID-19 pandemic.

participants on topics that they may consider important (Braun & Clarke, 2013). In addition, interviewer non-judgemental stance and active listening facilitate rapport building (Braun and Clarke, 2013) which is particularly important when discussing sensitive topics, such as suicidal experiences.

Prior to the development of the interview topic guide, the author (KH) checked the topic guides and types of questions used in published qualitative studies examining resilience to different mental health problems (e.g., depression, schizophrenia, e.g., Gooding et al., 2017). This helped develop questions which have been effectively used in published studies and would most optimally address the research aims of the studies presented in Chapters 4 and 5. During the development of the interview topic guide, the author (KH) outlined the broad areas of interest that were relevant to the research aims (i.e., resilience, suicidal thoughts and behaviours, schizophrenia/psychosis). The wording and content of the questions addressing these particular areas were carefully considered and developed to allow rapport building and smooth transition between the different topics of interest. This was achieved through discussions with the author's supervisory team and separate meetings with KH and members of the Service User Reference Group (SURG). The perspectives and advice of the SURG members was sought regarding the interview topic guide. Specific changes to the content of the interview topic guide were not put forward by the SURG members but they proposed changes to the order of individual questions. The interview was practiced with one member of the SURG who provided feedback regarding the order of questions, and the approach of the interviewer (KH). For example, during discussions with members of the SURG, they agreed that the interview should start with broader, 'warm-up' questions focusing on people's experiences of psychosis, before asking specific questions about experiences of suicidal thoughts and behaviours, which should then be followed by questions about resilience. The SURG members felt that ending the interview with questions about resilience, as opposed to suicidality, may result in more positive experiences, and provide closure to the interview, leaving the participant feeling listened to and empowered (see Appendices H and I for the topic guides used in the empirical studies described in Chapters 4 and 5 of this thesis). It should be noted that the same topic guide was used to generate data that were used for both qualitative studies and was, therefore, developed to address the research questions pertaining to the two qualitative studies equally.

2.5.2.3. Data sufficiency

The sample size of qualitative studies is usually ascertained by data saturation, that is, the point at which no new information is obtained through interviews (Glaser & Strauss, 1999). This approach is pertinent to the grounded theory research method but has been largely used in other qualitative research methods without any guidance for its application (Glaser & Strauss, 1999; Malterud, Siersma, & Guassora, 2015).

More recently, the term "information power" has been proposed for guiding the estimation of sample sizes in qualitative studies (Malterud et al., 2015). This concept relates to the amount of relevant information about a study that a sample holds which subsequently determines the number of participants needed to sufficiently answer the research questions (Malterud et al., 2015). Malterud and colleagues (2015) have developed a model for appraising the sample size in qualitative studies. The model encompasses five aspects, namely, i. study aim, ii. sample specificity, iii. use of theory, iv. quality of dialogue, and v. strategy for analysis. According to the model, the presence of a narrow study aim, high participant specificity, use of established theory, a strong interview dialogue and in-depth exploration of information requires a smaller sample size. The process of appraisal of information power is conducted throughout data collection.

The sample size in the empirical studies described in Chapters 4 and 5 was guided by the relevancy of data obtained that effectively addressed the research aims. This was ascertained through ongoing data analysis that helped evaluate the quality of the dialogue. Part of the sample was referred by mental health professionals, which necessitated fewer participants. However, the studies aimed to examine a broad range of variations of resilience to suicidality and psychosis experiences, which required more participants. Samples of around 20 participants have been suggested for ensuring maximum variation in qualitative studies (Baum, 2003). Based on these observations, a preliminary sample of 20 participants was deemed appropriate.

2.5.3. Quantitative methods

The systematic literature review described in Chapter 3 of this thesis identified a lack of longitudinal studies examining protective factors which may confer resilience and suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. Moreover, the qualitative study described in Chapter 4 of this thesis highlighted psychological resilience as an important mechanism protecting against suicidal thoughts and behaviours. The qualitative study

described in Chapter 5 of this thesis indicated that experiencing psychosis and associated distress were key amplifiers of suicidal thoughts and behaviours. No research has yet examined the moderating roles of psychological resilience, psychosis and the associated distress in the relationships with suicidal thoughts and behaviours in the long term. The empirical study described in Chapter 6 of this thesis sought to address this research gap (see Table 2.2 for an overview of the empirical studies). In particular, it was hypothesised that psychosis symptoms and distress would amplify the strength of the relationships between key suicide precursors, including defeat/entrapment, hopelessness and suicidal thoughts and behaviours, whereas resilience would weaken the strength of these relationships over time (see subsection 2.5.3.1 for the moderated mediation model).

The study described in Chapter 6 used a quantitative, longitudinal design. Data were collected prospectively to observe changes in the relationships between psychological resilience, psychosis, distress and suicidal thoughts and behaviours. In this design, the same people are tracked at separate points over time to observe changes and developments that cannot be captured with cross-sectional designs. The longitudinal study design offers greater statistical power, compared to cross-sectional studies, due to the repeated assessments at an individual level (van der Krieke et al., 2016).

Longitudinal designs assume that any variables measured at follow-up will have changed since they were first measured at baseline. To observe changes and establish temporal precedence in the relationships between variables in a mechanistic model, a temporal delay between baseline and subsequent assessments was necessary (Hayes, 2013; Maric, Wiers, & Prins, 2012). Measuring the outcome variable at several points in time is considered a powerful tool for inferring temporal precedence (Allison, 1990) and understanding psychological resilience mechanisms.

The data in Chapter 6 were collected at two time points, approximately three months apart. This time frame was selected based on a comprehensive review of the time frames used in previous longitudinal studies that assessed the impact of key suicide precursors, such as defeat, entrapment, and hopelessness on suicidal thoughts and behaviours. For example, a previous study implicated hopelessness as a short-term predictor (i.e., less than one month) of repeated suicide attempts (Sidley, Calam, Wells, Hughes, & Whitaker, 1999). O'Connor and colleagues (2008) found that baseline hopelessness was a significant predictor of suicidal ideation over a two and a half-month follow-up period. A longitudinal study found a significant association between high

baseline hopelessness and persisting suicidal ideation over three-, six-, and 12-month follow-up periods (Czyz & King, 2015). Similarly, another study adopting a one-year follow-up period found that baseline hopelessness predicted attempted suicide during the subsequent year in a sample of people with psychosis (Nordentoft et al., 2002). Hopelessness assessed at baseline and six months significantly predicted suicide attempts in people with psychosis two to four years later, but not four to 10 years later (Klonsky, Kotov, Bakst, Rabinowitz, & Bromet, 2012). The authors argued that hopelessness can predict suicide attempts over shorter follow-up periods (Klonsky et al., 2012).

In relation to defeat and entrapment, previous studies have used follow-up periods between four months and four years. For example, Slade, Edelmann, Worrall & Bray (2014) found that high levels of defeat predicted self-harm behaviours over a four-month follow-up period. Two studies with samples of people with PTSD used a six- and a nine-month follow-up period to test the impact of defeat on suicidality (Dunmore, Clark, & Ehlers, 2001; Kleim, Ehlers, & Glucksman, 2007). A longitudinal study used a composite measure of defeat and entrapment over a 12-month follow-up period (Taylor et al., 2011a). The authors argued that, due to the stability of suicidal ideation over time (Williams, Crane, Barnhofer, Van der Does, & Segal, 2006), a 12-month period would allow for a change to be observed. Finally, O'Connor, Smyth, Ferguson, Ryan and Williams, (2013) found that perceptions of entrapment predicted attempted suicide over a four-year follow-up period. Considering the extant evidence for the temporal trajectories of change in defeat, entrapment and hopelessness in relation to suicidality, a three-month follow-up period was considered optimal to allow for these experiences to develop over time in the empirical study described in Chapter 6 of this thesis.

Micro-longitudinal designs are another method of assessing the relationships between variables in a mechanistic model prospectively. Micro-longitudinal designs differ from traditional longitudinal designs in two ways. First, micro-longitudinal designs use multiple assessments of key variables several times per day for periods of around a week (Larson & Csikszentmihalyi, 1983; Palmier-Claus et al., 2011; Verhagen et al., 2016), as opposed to over longer periods of time. Second, micro-longitudinal designs are usually used within shorter time frames (e.g., six days, a few weeks; Stone, Shiffman, Atienza, & Nebeling, 2007; Verhagen et al., 2016), compared to traditional longitudinal designs. It has been suggested that in clinical practice, it is important to follow participants up over several months or years (Verhagen et al., 2016). In addition, participants in the

qualitative study described in Chapter 4 of this thesis reported that resilience developed over time. For these reasons, a traditional, rather than a micro-longitudinal design was adopted in the empirical study described in Chapter 6 of this thesis.

A variety of quantitative approaches and statistical techniques were adopted to test the research questions in the study described in Chapter 6 of this thesis. The statistical approaches require further discussion, as they were not described in detail in Chapter 6. The following subsections outline the analysis plan and provide an overview of and rationale for the statistical techniques used. The analysis plan included the following nine steps:

1. Selecting a statistical approach to test the research hypotheses.

2. Considering procedures for dealing with missing data.

3. Checking the distribution of the data by conducting normality tests.

4. Devising strategies to deal with non-normally distributed data.

5. Dealing with potential issues of multicollinearity between variables.

6. Considering data standardisation procedures.

7. Devising a method of controlling for variables.

8. Estimating the sample size required to test the hypotheses.

9. Selecting variables and measures.

2.5.3.1. Moderated mediation analysis

This subsection focuses on the rationale for the statistical model which was used to test the hypotheses in the empirical study described in Chapter 6. In particular, two hypotheses were tested:

1. Delusions and hallucinations will amplify the relationships between: i. defeat/entrapment and hopelessness, ii. hopelessness and suicidal thoughts and behaviours, and iii. defeat/entrapment and suicidal thoughts and behaviours, whereas psychological resilience will weaken the strength of these relationships.

2. Psychological distress associated with delusions and hallucinations will amplify the relationships between: i. defeat/entrapment and hopelessness, ii. hopelessness and suicidal thoughts and behaviours, and iii. defeat/entrapment and suicidal thoughts and behaviours. In contrast, psychological resilience will weaken the strength of these relationships.

Three additional exploratory analyses assessed the relative contribution of: i. defeat and entrapment as separate predictors, ii. delusions and hallucinations as separate moderators, and iii. distress associated with delusions and hallucinations as separate moderators in the model. The key premises of the statistical model, including mediation and moderation effects, are explained below.

Mediation analysis attempts to explain how or why an effect is observed and indicates that the relationship between the predictor and the outcome variable is fully or partially explained by a third variable (i.e., a mediator; Figgou & Pavlopoulos, 2015). It is important to note that a mediation occurs only if the causal assumptions between the predictor and outcome variables hold true (Judd & Kenny, 2010). Reversed causality effects (e.g., the outcome variable causing the mediator) should not be present (Judd & Kenny, 2010).

Moderation analysis attempts to explain when an effect is observed, that is, the strength of the relationship between the predictor and the outcome variable is affected by a third variable (i.e., a moderator; Figgou & Pavlopoulos, 2015). Moderation analyses provide generalisability of the results as they examine the extent to which a causal effect is universal across different populations (Figgou & Pavlopoulos, 2015).

Mediation and moderation effects can be tested within the same mechanistic model (Barron & Kenny, 1986). A distinction is made between mediated moderation and moderated mediation models. In mediated moderation models, a moderating effect between the predictor and the outcome variable is mediated by another variable, whereas in moderated mediation, there is an overall moderation effect on the outcome variable produced by the mediating process, the strength of which depends on the moderator (Muller, Judd, & Yzerbyt, 2005). Moderated mediation models test the conditional effect of a predictor variable on an outcome variable, via a mediator variable which differs depending on a moderator variable (Preacher, Rucker, & Hayes, 2007; see Figure 2.1 for an example of a moderated mediation model). This method helps explain the underlying mechanisms between variables, assuming temporal relationships (Gunzler, Chen, Wu, & Zhang, 2013).

There are three limitations of the moderated mediation technique that need to be considered. First, it requires a high statistical power and a large sample size (McClelland & Judd, 1993). Low statistical power would prevent replication of the model. Second, multicollinearity between the

variables in the model results in coefficients with inflated standard errors, which means that the study sample is not representative of the overall population (see subsection 2.5.3.5 for multicollinearity).

Mediator
variable

a

b

Predictor
variable

c'

Outcome
variable

Moderator
variable
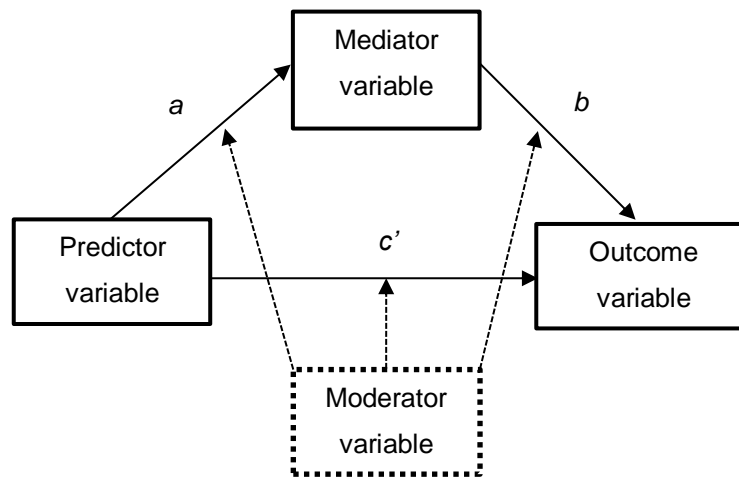
Figure 2.1. Moderated mediation model.

Third, there are substantial challenges in identifying moderating and mediating processes. The identification of mediating and moderating processes requires a solid theory and careful consideration of assumptions (Figgou & Pavlopoulos, 2015). However, knowledge of moderated mediation effects is particularly useful for clinical practice where understanding the specifics of how and in what contexts interventions are effective is essential (Fairchild & MacKinnon, 2009).

Previous research has indicated a need for longitudinal studies including moderators measured at baseline to test the associations between suicide precursors and subsequent suicidal thoughts and behaviours (Johnson et al., 2011). It has been argued that this approach may provide evidence for potential temporal precedence effects of resilience variables (Johnson et al., 2011). Moderated mediation models were used to test the hypotheses in the empirical study described in Chapter 6 of this thesis for six reasons.

First, moderated mediation models test mediation and moderation effects simultaneously (Borau, El Akremi, Elgaaied-Gambier, Hamdi-Kidar, & Ranchoux, 2015). Second, they produce more reliable results using the bootstrapping procedure (Borau et al., 2015; see subsection 2.5.3.4 for bootstrapping procedure).

Third, they are flexible and can be implemented with traditional multiple regression and structural equation models (SEM; Hayes & Preacher, 2013). These advantages make the moderated mediation technique superior to conventional statistical approaches, such as multiple regression (Baron & Kenny, 1986) and partial correlations (Cheung & Lau, 2007a).

Fourth, a central prediction of the Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) is an effect of positive self-appraisals (e.g., perceived social support, emotional and situation coping abilities) in the relationships between suicide precursors (e.g., defeat, entrapment, hopelessness) and suicidal thoughts and behaviours. Currently, no studies have tested moderating effects in these relationships prospectively.

Fifth, another prediction of the SAMS model is an effect of key suicide-related precursors (e.g., defeat, entrapment, hopelessness) in the pathways to suicidal thoughts and behaviours (Johnson et al., 2008). It has been posited that hopelessness develops from perceived inability to escape an unbearable situation (i.e., entrapment; Johnson et al., 2008). Therefore, it is important to test the impact of perceived defeat and entrapment on hopelessness and subsequent suicidal thoughts and behaviours in the long term.

Sixth, the qualitative studies described in Chapters 4 and 5 of this thesis identified important roles of psychological resilience, psychosis symptom severity and distress in relation to suicidal thoughts and behaviours. Therefore, it was necessary to test the moderating effects of psychosis, distress and resilience in the relationships between suicide precursors and suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. For example, it was hypothesised that psychosis experiences and distress would amplify, whereas resilience would attenuate the strength of these relationships.

Structural equation modelling (SEM) is another example of a statistical technique used to analyse potential relationships between variables. It uses latent variables inferred from observed variables (Kline, 2011). The use of latent variables has been advocated to adjust for statistical biases resulting from measurement error (Cole & Maxwell, 2003; Hoyle & Kenny, 1999). Measurement error is the difference between a measured variable and its true value (Dodge, 2003). Adjusting for measurement error can increase the observed effect size and power of a tested relationship. However, this usually leads to a decrease in precision as the standard errors produced by models using latent variables can be higher than those produced by models using observed variables. It

has been argued that the increased power observed in models using latent variables is negligible and, in some cases, yields less power than models using observed variables (Hoyle & Kenny, 1999; Ledgerwood & Shrout, 2011). Therefore, models using latent variables can produce larger, less significant coefficients, with reduced precision (Ledgerwood & Shrout, 2011). Furthermore, the estimation of SEM models testing interaction effects with latent variables have been associated with complexities and potential problems that deter from their use (Tomarken & Waller, 2005). For these reasons, SEM was not used in the empirical study described in Chapter 6 of this thesis.

Langfred (2004) described two types of moderated mediation models. The first type includes a moderator of the relationship between the predictor variable and the mediator variable. The second type includes a moderator of the relationship between the mediator variable and the outcome variable. Moderation effects were hypothesised to occur in any path of the model (i.e., a, b, c', or all three; see Figure 2.1). Mediation and moderation effects are tested using computational procedures (Hayes et al., 2013). To perform the moderated mediation analysis, model 73 from the PROCESS macro for SPSS statistical software version 25.0 was used (Hayes, 2013). The PROCESS macro is a logistic regression modelling tool used to estimate and probe the effects in hypothesised moderated mediation models (Hayes, 2013).

In addition, paired t-tests will be used to ascertain potential significant differences in the scores for all variables. In all analyses, a p-value of 0.05 will be used to determine statistical significance. This value is often chosen to infer the level of statistical significance of the results (Simpson, 2015).

2.5.3.2. Missing data procedures

Another step in the analysis plan was to devise a strategy for dealing with missing data. Missing data can compromise the precision and reliability of statistical analyses (Jakobsen, Gluud, Wetterslev, & Winkel, 2017). Inferential statistical analyses typically involve assumptions about the data that is missing from the original, observed data set. In order to account for missing data, it is important to determine the mechanism by which data are missing. For example, data can be missing at random (i.e., there is no pattern in the missing data), missing completely at random (i.e., the missing data are not related to any other variable) or missing not at random (i.e., there is a pattern in the missing data; Bennett, 2001). To test this, the Little's Missing Completely at Random test was performed (Little, 1988). The test showed that data on all variables were missing completely at random ($\chi2$=1749.01, df=5001, p=1.00). This meant that the missing data were

independent of the observed and unobserved data, and the obtained results were unlikely to be biased (Polit & Beck, 2012).

There are two ways of dealing with missing data, including deletion of cases with missing data and imputation of missing data with substitute values. Deleting cases decreases the statistical power of the estimations (Roth, 1994) which could be detrimental for studies with small sample sizes. Missing data can be imputed using single or multiple imputation (Jakobsen et al., 2017). Mean imputation is an example of a single imputation method, whereby the missing values are replaced by the average value for a variable. Where a scale is comprised of several subscales, the missing value in a subscale is replaced by the average value for the subscale. Whilst this method allows for complete case analysis to be performed, it can reduce the variability of the data and the correlation estimates between variables (Dziura, Post, Zhao, Fu, & Peduzzi, 2013). The multiple imputation method creates multiple, plausible datasets and replaces the missing values by random, plausible imputations (Jakobsen et al., 2017). This method is suggested for datasets with over 5% missing data and when the assumption for data missing completely at random is implausible (Jakobsen et al., 2017). Of note, the SPSS PROCESS macro cannot be used with multiple imputation datasets, created by the multiple imputation method.

To account for the limitations of each method for dealing with missing data, the expectation-maximisation approach was adopted. This is an iterative procedure whereby the missing values are estimated from other variables in the dataset (Dempster, Laird, & Rubin, 1977). For example, if a scale consisting of 12 items has one missing variable, its value is estimated from the values of the remaining 11 items. This process is re-iterated until the most likely value is imputed in the data. The method is used if the amount of missing data is relatively small (less than 3%). This approach is more robust than the mean imputation method as it preserves the relationships with other variables in the dataset. Therefore, the expectation-maximisation approach was used to account for missing data in the empirical study described in Chapter 6 of this thesis. Participants' scores for variables with imputed data were checked to ensure that the mean scores were not elevated or decreased, compared to the rest of their scores for that variable (see Appendix C).

2.5.3.3. Normality tests

Testing the distribution of the data represents another step in the analysis plan. A normality test is a way of assessing whether the dataset resembles a normal distribution, so that accurate statistical

inferences can be drawn (Field, 2013; Ghasemi & Zahediasl, 2012). To test for normality, the *z*-scores for the skewness and kurtosis of the variables were calculated for which skewness and kurtosis scores were divided by their standard errors. If the obtained value was greater than ±1.96, this indicated that data were non-normally distributed (Ghasemi & Zahediasl, 2012). This method is recommended for studies with small sample sizes (i.e., less than 200; Field, 2013). Pearson's correlation coefficient was used for normally distributed data and Spearman's rho was used for non-normally distributed data to explore associations between the variables in the empirical study described in Chapter 6 of this thesis.

2.5.3.4. Bootstrapping

Bootstrapping is a non-parametric, resampling statistical procedure used to provide statistical inferences about a population sample (Efron & Tibshirani, 1993). The method involves random re-sampling of numerous subsamples of the original sample to estimate a statistic of interest. It has been suggested that re-sampling with at least 1000 subsamples is needed to provide a statistical inference (Mooney & Duval, 1993). The bootstrapped sample provides an accurate estimate of the distribution of the statistic of interest in the population (Mooney & Duval, 1993). A confidence interval can be generated from the bootstrapped sample to test the null hypothesis (i.e., that there is no association between groups; Fox, 2008). An advantage of the bootstrapping procedure is that it does not rely on assumptions of normality, yet it can be used with parametric statistical methods, such as testing regression models including moderation and mediation effects (Fox, 2008). It is also appropriate for smaller samples (Preacher & Hayes, 2004).

Log-transformations are often used to address the issue of non-normality with skewed data. However, it has been argued that in some circumstances, this method can make the data more skewed as the transformed data share little in common with the original sample and, therefore, cannot provide accurate statistical inferences (Feng et al., 2014). A method for testing the significance of a mediation effect between the independent and outcome variable is the Sobel test. However, the test assumes normally distributed data which is rare in mediated effects (Cheung & Lau, 2007b). The bootstrapping technique offers a more rigorous alternative and was, therefore, used in the empirical study described in Chapter 6.

2.5.3.5. Multicollinearity tests

Multicollinearity between the variables in a statistical model means that changes in one variable are related to changes in another variable because they are highly correlated (Iacobucci, Schneider, Popovich, & Bakamitsos, 2016). When this occurs, it is difficult to make inferences about the relationships between each predictor variable and the outcome variable independently. This, in turn, reduces the precision of the coefficients, which weakens the statistical power of the model, making the observed results unreliable (Hair, Black, Babin, & Anderson, 2009). The variance inflation factor (VIF) and tolerance are two methods used to examine multicollinearity. The VIF is an indicator of an increase in the variance of estimated regression coefficients as a result of correlated variables. A VIF of 10 or higher and a tolerance value below 0.2 indicate high collinearity (Hair et al., 2009; Menard, 1995). Both, the VIF and tolerance were used to test for multicollinearity between variables in the statistical model tested in the empirical study described in Chapter 6 of this thesis.

2.5.3.6. Data standardisation procedures

Variables in statistical models are often standardised when they have different units of measurement. This procedure facilitates comparison and meaningful interpretation of different scales (Field, 2013; Gower, 1985). A common method for standardising variables is calculating their z-scores. A z-score is obtained by subtracting the variable mean from the raw score and dividing the difference by the standard deviation (Field, 2013; Gower, 1985).

Mean centring is another method of standardising variables. A mean centred variable is obtained by subtracting the mean of that variable (Hayes, 2013). An advantage of mean centring over z-scores is that the interpretation of the coefficients remains unchanged. That is, the coefficients reflect a mean change in the outcome variable, given a change in the predictor variable. Both, z-scores and mean centring, are recommended to minimise multicollinearity (Dawson, 2014; Hayes, 2013). Except for cases of high multicollinearity, the results of each method of standardisation are identical, therefore the choice between the two is a matter of preference (Dalal & Zickar, 2012; Dawson, 2014; Kromrey & Foster-Johnson, 1998). The PROCESS macro in SPSS includes a function for mean centring the variables in a model. This function was used for all analyses presented in the empirical study in Chapter 6. All variables, besides the outcome variable, were mean centred prior to the moderated mediation analysis. The outcome variable was not mean

centred as that would reduce its variability and result in inaccurate interpretations of the results (Dawson, 2014).

2.5.3.7. Controlling for variables

Statistically controlling for variables is the attempt to reduce the potential confounding effects between outcome and control variables, in order to reduce measurement error (Becker, 2005; Pourhoseingholi, Baghestani, & Vahedi, 2012; Schmitt & Klimoski, 1991). This is particularly important for statistical models which attempt to make causal inferences (Salkind, 2010). With longitudinal designs, baseline variables are often controlled for to reduce the likelihood of a biased effect (Clifton & Clifton, 2019). Calculating change scores is another method of controlling for baseline scores in studies using longitudinal designs. A change score is the difference between the baseline and follow-up assessments of the outcome variable in a longitudinal study (Allison, 1990; Singer & Willett, 2003).

Observing a change over time between baseline and follow-up variables is important in longitudinal study designs (Caruana, Roman, Hernandez-Sanchez, & Solli, 2015). A lack of statistically significant difference between the baseline and follow-up variables would resemble a cross-sectional design because there would be no influence of time on the variables of interest. To address this issue, the baseline and follow-up variables can be tested in two separate models (Singer & Willett, 2003). For example, one model will include all variables measured at baseline, whereas another model will include all variables assessed at follow-up. The results of the two models can be then compared to make inferences about the relationships between baseline and follow-up interactions over time. Alternatively, the change scores can be used (Singer & Willett, 2003). Change scores tend to minimise the variation within variables which is constant between baseline and follow-up assessments (Salkind, 2007). Therefore, analyses using change scores tend to offer greater statistical power (Allison, 1990; Glymour, Weuve, Berkman, Kawachi, & Robins, 2005). However, change scores do not account for the issue of regression to the mean (Clifton & Clifton, 2019). Furthermore, the measurement error from baseline and follow-up assessments may lead to negatively correlated change scores and baseline scores, resulting in inaccurate change (Salkind, 2007). Controlling for baseline scores is advised, in order to avoid bias in the estimated effect (Clifton & Clifton, 2019). For these reasons, the statistical control technique was adopted when testing the proposed longitudinally designed model described in Chapter 6 of this thesis.

2.5.3.8. Power calculations

In statistics, power is the probability of avoiding a Type II error, that is, a failure to report a genuine effect in a statistical analysis (Dorey, 2011). G*Power is a statistical power analysis program that is used to estimate the sample size for analyses such as multiple regression and ANOVA (Cohen, 1988; Faul, Erdfelder, Lang, & Buchner, 2007). However, G*Power does not calculate power for indirect effects and is not recommended for use with complex statistical models (e.g., mediation models; Aberson et al., 2020; Schoemann, Boulton, & Short, 2017). Therefore, this program was not used to estimate the sample size required for the analyses conducted in Chapter 6.

Monte Carlo analysis is an approach to determining sample size required for complex analyses (e.g., mediation models; Schoemann, Boulton, & Short, 2017). The Monte Carlo analysis uses simulations to generate a sample with specified effect size parameter and to generate thousands of random samples of a specific size (Schoemann, Boulton, & Short, 2017). The mediation analysis is then conducted on each generated sample. The number of results that allowed to reject the null hypothesis constitutes power.

There are several available tools which use Monte Carlo simulations for estimating power in mediation models (e.g., Kenny, 2017; Schoemann, Boulton, & Short, 2017; Zhang & Wang, 2013; Zhang & Yuan, 2018). However, these tools have a variety of limitations. For example, they are computationally intensive (Zhang, 2014), require knowledge of a specific software (e.g., R, Mplus) and an estimation of all population parameters, paths and correlations among the variables included in the analysis, which is challenging to do *a priori* (Aberson et al., 2020; Schoemann, Boulton, & Short, 2017). Furthermore, power analysis tools for conditional process models that integrate mediation and moderation are currently lacking (Aberson et al., 2020). Therefore, a formal power analysis was not conducted. Previous studies testing moderated mediation models with people with schizophrenia have used sample sizes of between 89 and 170 participants (Lam, Raine, & Lee, 2014; Lien et al., 2017; Nakagami, Xie, Hoe, & Brekke, 2008). These sample sizes were used as a guide in the empirical study described in Chapter 6.

2.6. Choice of Measures

This section provides consideration and evaluation of the measures selected for the empirical study presented in Chapter 6 of this thesis. The measures used to assess suicidal thoughts and behaviours, suicide precursors (i.e., hopelessness, defeat and entrapment), psychological

resilience, psychosis symptoms, distress and depression are described in the following subsections. These measures were reviewed and piloted with members of the SURG who gave suggestions for the most appropriate order of completion of these measures. Considering their feedback, measures of suicide and suicide precursors were administered before measures of resilience during the assessments.

2.6.1. Measuring suicidal thoughts and behaviours

The assessment of suicidal thoughts and behaviours in participants is a fundamental part of this thesis and constitutes a main outcome measure in the empirical study presented in Chapter 6 of this thesis. Throughout this thesis, the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991) was used to measure participants' experiences of suicidal thoughts and behaviours.

The BSS is a 21-item, self-report measure of different aspects of suicidal ideation and behaviours, such as wishes to die, making a suicide attempt, and preparation for a contemplated attempt (e.g., writing a suicide note) experienced over the past week. The final two items (20 and 21) assess participants' history of suicidal behaviour. These two items probe suicidal behaviours, namely the number of past suicide attempts and the strength of the wish to die during the last suicide attempt. All items are rated on a 3-point scale, ranging from 0 to 2. The sum of the responses on these items yields a total score between 0 and 42. Research including participants with psychosis experiences has reported internal consistency of .96 for the scale (Pinninti, Steer, Rissmiller, Nelson, & Beck, 2002). A recent systematic literature review and evaluation of measures for suicidal ideation and behaviours identified BSS as the only measure that assessed passive (e.g., wishing to die) and active suicidal ideation (e.g., planning how to die by suicide; Batterham et al., 2015), which provided a broader measurement of suicidal experiences. Therefore, this scale was used to measure, both, suicidal ideation and behaviours in the empirical study described in Chapter 6 of this thesis. An issue with this scale is that it does not specify a score which is an indicator of suicide risk and it requires greater literacy skills to complete, compared to other measures (Batterham et al., 2015). However, it has been argued that the clinical utility of measures in predicting risk of self-harm is limited (Quinlivan et al., 2016; Steeg et al., 2018).

The Suicidal Ideation Attributes Scale (SIDAS; van Spijker et al., 2014) is a relatively new, brief screening scale. It includes five items assessing the frequency, controllability and closeness to suicidal attempts related to suicidal thoughts, as well as the associated distress and interference

with daily activities over the past month. Items are scored on a 10-point scale with different descriptions. An example item includes: "In the past month, how often have you had thoughts about suicide?" (scoring: 0 Never, 1-9: unlabelled points, 10 Always). The possible maximum score on the scale is 50. The scale has been reported to have a high reliability in a general population adult sample (α=.91; van Spijker et al., 2014). Both, the SIDAS and the BSS, showed greatest potential for use in population research, according to Batterham and colleagues' review (2015). However, the SIDAS has not been validated with schizophrenia populations. Furthermore, it only measures suicidal thoughts, without suicidal behaviour history. Therefore, the BSS was deemed best suited for the purposes of the empirical study described in Chapter 6 of this thesis and selected as the main outcome measure in the tested model.

2.6.2. Measuring hopelessness

Perceived hopelessness (i.e., a presence of negative future expectations and lack of positive future expectations; Johnson et al., 2008; O'Connor, 2003) has been implicated as a factor which can increase the likelihood of experiencing suicidal thoughts and behaviours in people with schizophrenia diagnosis (Hawton & Van Heeringen, 2009; Hawton et al., 2005; Pompili et al., 2007). Therefore, it has been included as a mediator variable in the statistical model tested in the empirical study described in Chapter 6. The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a 20-item scale designed to assess the presence of hopeless thoughts and beliefs over the past week. Items include: "My future seems dark to me" and "Things just won't work out the way I want them to", to which respondents can answer with "True" or "False". The possible maximum score on the scale is 20. However, the dual True/False response may result in socially desirable results, and therefore, reduce its reliability and validity (Glanz, Haas, & Sweeney, 1995). Nevertheless, the BHS has been the most frequently used measure of hopelessness over the past few decades (Kliem, Lohmann, Mößle, & Brähler, 2018). The internal consistency of the scale has been reported as .85 in a study with people with a diagnosis of schizophrenia (Kao, Liu, & Lu, 2012).

The Brief-H-Neg is a two-item measure of hopelessness (Everson et al., 1996). The two items include: "The future seems to me to be hopeless and I can't believe that things are changing for the better" and "I feel that it is impossible to reach the goals I would like to strive for." The items are scored on a five-point scale, ranging from 2 to 10, where higher scores indicate higher hopelessness. The measure has been used in samples of people with cardiovascular problems

(Everson et al., 1997; 2000) but its reliability has not been established (Fraser et al., 2014) and it has not been validated in people with schizophrenia diagnosis. Therefore, the BHS was deemed a more suitable measure of hopelessness in the empirical study described in Chapter 6 of this thesis.

2.6.3. Measuring defeat and entrapment

Similar to hopelessness, perceptions of defeat (i.e., a failed social struggle) and entrapment (i.e., inability to escape from situations; Gilbert & Allan, 1998) have been implicated as contributing to experiences of suicidal thoughts and behaviours in people with different mental health problems, such as anxiety, depression, bipolar disorder, PTSD and schizophrenia (Bolton et al., 2007; Johnson et al., 2008; Kallmann & Anastasio, 1947; Owen, Dempsey, Jones, & Gooding, 2018; Taylor et al., 2010a; 2011b; Williams, 1997). As such, it is important to include measures of defeat and entrapment in suicide-related research. The Defeat and Entrapment Scales (Gilbert & Allan, 1998) contain 16 items each, designed to measure perceptions of failed struggle and low social rank (e.g., "I feel that I am one of life's losers.") and being trapped and the desire to escape (e.g., "I am in a situation I feel trapped in.") over the past week. Both are measured on a five-point scale. The Defeat scale ranges from "Never" to "Always/all the time", whereas the Entrapment scale ranges from "Not at all like me" to "Extremely like me". The possible maximum score for the two scales is 64. The internal consistency of the Defeat and Entrapment scales has been reported as .86 and .95, respectively, in a sample with schizophrenia diagnosis (Taylor et al., 2010a). The two scales were chosen for their wide use in suicide research (Panagioti et al., 2012; Taylor et al., 2010a; 2010b; 2011a; 2011b).

Other measures of defeat and entrapment include the Mental Defeat during Trauma Scale (MDTS; Dunmore, Clark, & Ehlers, 1999) and the narrative-based coding system for assessing defeat in relation to trauma (Dunmore, Clark, & Ehlers, 1997). However, these two measures assess only defeat and their effectiveness in capturing perceptions of defeat has not been empirically confirmed (Taylor et al., 2011b). According to contemporary models of suicide, both, defeat and entrapment are important precursors to suicidal thoughts, behaviours and suicide death (Johnson et al., 2008; Williams 1997). Therefore, the Defeat and Entrapment Scales were deemed suitable for the empirical study described in Chapter 6 of this thesis.

It is important to note that due to conceptual overlap, a composite measure of defeat and entrapment was used in the main mechanistic model tested in Chapter 6. The composite measure

was created by summing the total scores of the Defeat and Entrapment Scale. This decision was based on previous research (Panagioti et al., 2012; Taylor et al., 2010a; 2010b) and the Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) which have conceptualised defeat and entrapment as a single psychological construct. Exploratory analyses including defeat and entrapment as separate predictors were also conducted.

2.6.4. Measuring psychological resilience

There are several self-report measures developed to assess psychological resilience in diverse populations (e.g., children, adolescents, older adults; Garcia-Dia, DiNapoli, Garcia-Ona, Jakubowski, & O'Flaherty, 2013). The aim of using an empirical instrument is to measure the defining characteristics of the resilience concept (Garcia-Dia et al., 2013). When choosing a measure to address a particular research question, the research context, study population, and conceptual definition of resilience should be considered (Gillespie, Chaboyer, & Wallis, 2007).

Ahern, Kiehl, Sole and Byers (2006) and Windle et al. (2011) reviewed the psychometric properties of resilience scales used in studies with different populations. Ahern et al. (2006) found that the Dispositional Resilience Scale (DRS, Bartone et al., 1989), the Ego-Resilience Scale (ERS, Block & Kremen, 1996; Bromley, Johnson, & Cohen, 2006; Klohnen, 1996), the Resilience Scale (RS, Wagnild & Young, 1993), and the Connor–Davidson Resilience Scale (CD-RISC, Connor & Davidson, 2003) were the most widely used and had the most robust psychometric properties in measuring trait resilience (Cronbach's α=0.76–0.90). Windle et al. (2011) found that the Resilience Scale for Adults (RSA; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003), the Brief Resilience Scale (BRS; Smith et al., 2008) and the Connor–Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) received the highest psychometric ratings. Of note, all of the scales included in the two reviews focused on measures that assess resilience as a personality trait or characteristic, as opposed to a process, outcome or perceptions of personal abilities (Ahern et al., 2006; Windle et al., 2011).

The CD-RISC was identified as a scale with robust psychometric properties in both reviews. It measures key resilience aspects, namely, personal qualities that enable individuals to adapt to change, thrive during adverse life events (e.g., personal competence, acceptance of change, control, spiritual influences), and "bounce back" or recover successfully from such events. The ability to bounce back and recover are important aspects of individual resilience (Connor &

Davidson, 2003; Richardson, 2002; Vaishnavi, Connor, & Davidson, 2007). The CD-RISC has been used in clinical (e.g., PTSD, depression, anxiety, cancer) and non-clinical populations to measure resilience. The scale was inspired by research on hardiness (Kobasa, 1979), stress and pain endurance (Lyons, 1991), and adaptability to change (Rutter, 1985). It contains 25 items, rated on a five-point scale (0-not true at all; 1-rarely true; 2-sometimes true; 3-often true; 4-true nearly all of the time) which measure key resilience aspects, namely i. personal competence, high standards, and tenacity, ii. trust in one's instincts, tolerance of negative affect, strengthening effects of stress, iii. positive acceptance of change and secure relationships, iv. control, and v. spiritual influences, experienced over the past month. The possible maximum score on the scale is 100. Examples of items included in the scale are: "I can deal with whatever comes", "I am in control of my life", and "I tend to bounce back after illness or hardship". The scale has been used in samples of people with a range of mental health problems, including schizophrenia, anxiety, depression, and PTSD (Bozikas et al., 2016; Kukihara, Yamawaki, Uchiyama, Arai, & Horikawa, 2014; Min, Yu, Lee, & Chae, 2013). The scale has high internal consistency ($α$=.88) in people with a diagnosis of schizophrenia (Bozikas et al., 2016).

However, a criticism of this scale is the lack of theoretical grounding and the conceptualisation of resilience as a trait-related concept. This is counter to the findings of the empirical study described in Chapter 4 of this thesis, whereby resilience was described as an outcome and a process that developed over time, as opposed to a personality trait (Gooding & Harris, 2020; Harris et al., 2019a). Furthermore, the number of items forming each factor in the scale has been questioned (Campbell-Sills, & Stein, 2007, Connor & Davidson, 2003; Green et al., 2014; Yu et al., 2011). For these reasons, the CD-RISC was not used in the empirical study described in Chapter 6 of this thesis.

The Resilience Appraisals Scale (RAS; Johnson et al., 2010a) is a newer measure, not included in the abovementioned reviews, based on mechanisms of suicidality proposed by the SAMS (Johnson et al., 2008; Johnson et al., 2010a). It is a 12-item scale designed to assess three types of self-appraisals suggested by SAMS to be important sources for resilience, namely perceived social support, situation coping abilities and emotion coping abilities, without a specified timeframe (Johnson et al., 2010a). The items are scored on a 5-point scale, ranging from "strongly disagree" to "strongly agree". The possible maximum score on the scale is 60. The scale has been used in populations of different ages (Johnson et al., 2010a; Gooding, Hurst, Johnson, & Tarrier, 2011)

and, importantly, in those experiencing mental health problems such as psychosis (Johnson et al., 2010a, 2010b). The RAS has a high overall internal consistency of .88 (emotional coping subscale α=.92; problem solving subscale α=.93; social support subscale α=.93; Johnson et al., 2010a). Considering the extant evidence for psychometric properties and theoretical grounding, the RAS were selected to assess psychological resilience in the empirical study described in Chapter 6 of this thesis.

2.6.5. Measuring psychosis symptoms

The Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein & Opler, 1987) is considered a gold-standard, semi-structured, interviewer-administered measure of the severity of positive and negative psychosis symptoms, and general psychopathology over the past week (Lindenmayer, 2017). The PANSS includes seven items in the positive scale, seven items in the negative scale, and 16 items in the general psychopathology scale. Each item is rated on a 7-point scale, ranging from 1 (Absent) to 7 (Extreme). The possible maximum score is 210. The PANSS is widely used in mental health research and has good validity and internal consistency in samples of people with schizophrenia (α=.71; Edgar et al., 2014).

Limitations of the PANSS are that it has not been modified since it was developed over 30 years ago (Kumari, Malik, Florival, Manalai, & Sonje, 2017); it requires a long time to administer; and a candidate to ensure a standardised level of reliability. However, the PANSS has advantages over other interview measures of psychosis, such as the Scales for the Assessment of Positive and Negative Symptoms (SAPS and SANS; Andreasen, Flaum, Arndt, Alliger, & Swayze, 1991) and the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962). For example, the PANSS is sensitive to change which makes it particularly useful for longitudinal clinical research (Kumari et al., 2017). Moreover, it is a comprehensive measure incorporating positive and negative psychosis symptoms, as well as general psychopathology. Therefore, the PANSS is very thorough in capturing the severity of psychosis symptoms (Joao Martins, Carvalho, Castilho, Pereira, & Macedo, 2015). A pertinent criticism of the SAPS and SANS relates to the dualistic conceptualisation of psychosis (Kumari et al., 2017). Rather than simply dividing psychosis symptoms into positive and negative, multidimensional conceptualisations of several categories have been proposed (Klimidis, Stuart, Minas, Copolov, & Singh, 1993). On the other hand, the clinical meaning of the BPRS' total score and cut-off scores that determine treatment response have been questioned (Leucht et al., 2005; Sawamura, Morishita, & Ishigooka, 2010). The PANSS

is, arguably, more practical in exploring experiences of psychosis in greater detail in clinical settings (Joao Martins et al., 2015), compared to SAPS, SANS and BPRS. Therefore, it was used as a moderator variable in the model tested in Chapter 6.

A co-occurrence of experiences of delusions and hallucinations is observed (Maher, 2006). Several studies have investigated the independent relationships between delusions and suicidality (Freeman et al., 2019; Grunebaum et al., 2001; Saha et al., 2011) and hallucinations and suicidality (DeVylder & Hilimire, 2015; Montross, Zisook, & Kasckow, 2007; Penagaluri, Walker, & El-Mallakh, 2010; Wong et al., 2012). However, the importance of hallucinations in their relationship with suicidality is not clear, as the majority of empirical studies do not find a significant relationship between command hallucinations and suicidal behaviour (Montross et al., 2007). In relation to delusions, a study found no evidence of a relationship between delusions and history of suicidal ideation or suicide attempts (Grunebaum et al., 2001). Little is known about the cumulative effect of experiencing both hallucinations and delusions on suicidal ideation (Bornheimer et al., 2019). Therefore, the model described in Chapter 6 will be tested with delusions and hallucinations, separately and combined, to tease apart any potential differences and cumulative effects on suicidality. Only the PANSS items assessing delusions (P1) and hallucinations (P3) were used in all analyses. The scores on these items were added up to create a composite psychosis delusions and hallucinations variable.

The Psychotic Symptom Rating Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999) are two interviewer-administered scales designed to measure the severity of different dimensions of auditory hallucinations and delusions (e.g., associated distress, conviction of beliefs) experiences over the past week. The auditory hallucinations scale includes 11 items, rated on a 5-point scale, ranging from 0 (absence of symptoms) to 4 (presence of symptoms). The maximum score on the scale is 44. The delusions scale includes six items, rated on a 5-point scale, ranging from 0 (absence of symptoms) to 4 (presence of symptoms). The maximum score on the scale is 24. Together, the two scales have been reported to have excellent inter-rater reliability (ICC=.99–1.00) and good validity (they are significantly correlated with the PANSS (r=.18–.26); Drake, Haddock, Tarrier, Bentall, & Lewis, 2007; Haddock et al., 1999). The PSYRATS are considered useful supplements to existing measures of the severity of psychosis symptoms, such as PANSS (Drake et al., 2007), such as conviction of beliefs, intensity of distress, disruption of daily life, as well as location, loudness and amount negative content of voices. Of particular relevance to the

tested hypotheses are the PSYRATS items measuring the intensity of distress associated with delusions and hallucinations.

Previous research has indicated that suicidal behaviours may be due to the distress caused by psychosis experiences (Ventriglio et al., 2016). Psychological distress with accompanying psychosis experiences are important predictors of non-suicidal self-injury and suicide attempts (Martin, Thomas, Andrews, & Hasking, 2015). A study with adolescents found that psychosis experiences alone did not predict future risk of non-suicidal self-injury and suicide attempts (Martin, et al., 2015). Therefore, two items assessing distress from the PSYRATS delusions (items 4 and 5) and auditory hallucinations (items 8 and 9) scales will be included as a moderator in the model tested in Chapter 6. In line with the second hypothesis, the model will be tested with distress items for delusions and hallucinations combined. The scores on these items were added up to create a composite delusions and hallucinations distress variable. An additional exploratory analysis will include the delusions and hallucinations distress items as separate moderators, in order to tease apart any potential differences in their effect on suicidality.

2.6.6. Measuring depression

Depression is a common psychiatric comorbidity in people with schizophrenia diagnosis (Buckley et al., 2009; Dernovsek & Sprah, 2009). Depression may be related to psychological processes underpinning the development of psychosis symptoms (Buckley et al., 2009; Dernovsek & Sprah, 2009). Therefore, it is important to control for the potential impact of depression on the research outcomes. The Calgary Depression Scale for Schizophrenia (CDSS; Addington, Addington, & Schissel, 1990) is a nine-item observer-rated measure, specifically designed for people experiencing schizophrenia-related mental health problems. It is designed to minimise contamination by negative psychosis symptoms. Example items include: "How would you describe your mood over the past two weeks?" and "What is your opinion of yourself compared to others?". Items are scored from 0 (Absent) to 3 (Severe), with a possible maximum score of 21. The scale has high reliability in people with a diagnosis of schizophrenia ($α=.79$; Addington, Addington, Maticka-Tyndale, & Joyce, 1992). This scale was chosen to measure depression in the empirical study described in Chapter 6 of this thesis, specifically for its application in studies with people experiencing psychosis and schizophrenia.

2.7. Ethical Considerations

This section focuses on the ethical considerations in the empirical studies described in Chapters 4 to 6, including ethical approval, managing participant risk, distress, and confidentiality, and researcher distress and safety.

2.7.1. Ethical approval

The empirical studies were all approved by an NHS Research Ethics Committee. Before the commencement of each empirical study, KH and a member of her supervisory team (PG) attended a research ethics committee meeting where aspects of the studies were discussed, and ethical approval was granted. The Research Ethics Committee for Greater Manchester, England (REC reference: 17/NW/0211, date: 03/05/2017; REC reference: 18/NW/0181, date: 10/04/2018) granted ethical approval. Approvals to carry out the studies were also obtained from the relevant NHS Trust Research and Development offices at Greater Manchester Mental Health NHS Foundation Trust, Pennine Care NHS Partnership Trust, Lancashire Care NHS Foundation Trust, and North West Boroughs Healthcare NHS Trust for the empirical studies described in Chapters 4 and 5. Approvals were sought from the same Trusts and Cheshire & Wirral NHS Partnership Trust, in addition, for the empirical study described in Chapter 6. Data collection for the empirical studies commenced only after the relevant ethical approvals were in place and all participating trusts confirmed capacity to support the studies.

2.7.2. Managing risk, participant distress and safety

Ensuring participant safety and minimising potential distress are of paramount importance when conducting research (Andriessen et al., 2019; Draucker, Martsolf, & Poole, 2009). The studies in this thesis included completion of questionnaires and exploration of sensitive topics relating to experiences of psychosis, and suicidal thoughts and behaviours. This may have increased the risk of participant distress due to recollection of suicidal thoughts or behaviours, and/or symptoms of psychosis (e.g., low mood, depression, hallucinations and/or delusions). The research experience of the supervisory team and the discussions with the service user reference group (SURG) assured appropriate sensitivity to the context of collecting data from participants who may already be distressed. Furthermore, KH has received training in Good Clinical Practice, Mental Capacity Act, providing suicide first aid and preventing the immediate risk of suicide death (i.e., Applied Suicide Intervention Skills Training [ASIST], organised by Rochdale Mind). Importantly, KH received

supervision from her clinical supervisor to ensure that potential issues of risk and distress were minimised and handled sensitively and effectively.

The National Institute of Mental Health (2020) has devised a guideline for conducting research with participants at risk of suicide death which aims to promote the development of ethical suicide research and support suicide prevention efforts. The guideline focuses on research design, study monitoring, procedures for obtaining informed consent and responding to suicide crises. In line with this, protocols to minimise potential risk of participant distress were developed for the empirical studies in this thesis and followed throughout the data collection period (see Appendix D). These protocols were discussed with the SURG which offered useful insight and recommendations for managing participant distress. Managing risk, participant distress and safety included six steps.

First, prior to consent, all potential participants were informed verbally by KH and by the participant information sheet what each study entailed and about potential distress they may experience by participating. Second, participants were offered regular breaks during assessments.

Third, participants were informed that there was no obligation to answer all questions or continue to take part in the study. The participant information sheet and consent form which each participant signed prior the assessment stated that their relationship with health care professionals, as a result of study participation or withdrawal, would not change.

Fourth, KH asked all participants to score their mood on a visual analogue scale, ranging from 0 (worst imaginable) to 100 (best imaginable) at the beginning and the end of each assessment. This was used as an indication of the potential impact of the study on participant's mood (Biddle et al., 2013). If a participant reported lower mood at the end of the assessment, KH examined what may have contributed to this and how any potentially negative impact of the assessment could be mitigated, with participants' input. Importantly, previous research has shown that, from participants' perspective, the benefits of participating in suicide-related research (e.g., increased altruism and understanding of self) outweigh the potential negative impact (e.g., temporary dip in mood; Littlewood et al., 2019). Previous research has shown that talking about suicidal thoughts and behaviours does not exacerbate distress or suicidal thoughts and behaviours in research participants (Blades et al., 2018; Littlewood et al., 2019).

Fifth, KH conducted follow-up phone calls with participants who wished to be contacted, on the day following the assessment, to discuss any issues that may have arisen, and to check participants' wellbeing. KH informed the participants' mental health care team if they suspected the participant was distressed or unwell during the follow-up phone call. KH attempted to ensure that each participant felt safe and was not in distress as a consequence of taking part in the studies.

Sixth, at the beginning of the data collection session, participants were provided with contact details of appropriate support services in the North West of England (e.g., Samaritans, Crisis Team, Mind Infoline), in case they required additional support. KH kept a record of any risk-related information (e.g., harm to self or other people) disclosed during the assessments or the follow-up telephone calls. This information was passed on to the participants' mental health care team, with participants' collaboration, and discussed with the KH's clinical supervisor (GH).

2.7.3. Ensuring participant confidentiality

Information provided by the participants in the empirical studies described in Chapters 4 to 6 of this thesis was treated as confidential. However, any information disclosed to KH, indicating that a participant might be at risk to themselves or another person, necessitated confidentiality to be broken, and members of the participant's mental health care team to be informed of that risk. At the beginning of each interview session, all participants were informed verbally and via the consent form about the potential breach of confidentiality in those cases.

Access to personal information that participants gave for the purpose of the studies that was not anonymised was restricted solely to KH and her supervisors. Following completion of data collection, all identifiable information (e.g., personal names, names of family members, friends, mental health workers, places, hospitals) were not entered into the research databases. Qualitative data obtained from the interviews were used in the data analyses in Chapters 4 and 5. Only quantitative data provided in all assessments were used in the data analyses in Chapter 6. Published results did not contain any personal data that could identify individual participants. As the study presented in Chapter 6 was longitudinal, the contact details for participants were stored for the study period, in a password-protected file on KH's computer at the University of Manchester which had access restrictions via username and password. Hard copy data (i.e., questionnaire measures) relating to each participant was safely stored in a locked filing cabinet, in a locked office and separate from any personal data (i.e., signed consent forms and non-digital records that may

contain identifying information). Audio recordings of interviews were stored digitally and deleted past the retention period that participants had consented to.

In accordance with the University of Manchester's data management policies, the Data Protection Act (2018) and the General Data Protection Regulation (GDPR; after 25th May 2018) extensive protocols were put in place to ensure secure handling and management of participant information and data. Data collected from individual participants were not used for any purpose, other than that described in the participant information sheet and consent forms. All participants were allocated a unique identification number. All subsequent information pertaining to each participant was identifiable via that number. The association between the participant's name and identification number was stored electronically, in separate password-protected files, on KH's computer at the University of Manchester.

As part of the University of Manchester's Code of Good Research Conduct, the empirical studies described in Chapters 4 and 5 were audited to ensure adequacy and effectiveness of the governance, risk management, and control processes of research. The audit included reviewing the organisation and completeness of data and source documentation which provided assurance that the study documents and related data were recorded and managed appropriately and effectively.

2.7.4. Managing researcher distress and safety

Frequent clinical supervisions with a clinical supervisor (GH) were held which offered support for KH's concerns or emotional distress (Bernard & Goodyear, 2004; Milne & Watkins, 2014). The clinical supervisor was available on days when KH was collecting data. Participant eligibility and risk information (e.g., harm to self or others) obtained from mental health professionals upon participant referral was discussed with KH's clinical supervisor (GH), prior to arranging an assessment.

In order to mitigate any potential risk that may have occurred during data collection, KH adhered to the University of Manchester's lone worker policy which included information on visits at home and in private settings. The policy is in accord with the British Psychological Society's practice guidelines (2017). In advance of each study assessment, she informed a designated safety check contact from the University of the location of the visit and exactly when it was starting and was expected to end. In accordance with the policy, KH telephoned the safety check contact on a

designated mobile phone to inform them when they arrived at the assessment destination and as soon as the assessment was completed. If KH felt uncomfortable, for any reason, visiting a participant alone, the policy stated that she must arrange for another researcher to accompany them during the visit, with permission from the participant. This policy is regularly reviewed by clinicians and academics working at the University of Manchester.

CHAPTER 3

3. **Psychological Resilience to Suicidal Thoughts and Behaviours in People with**

Schizophrenia Diagnoses: A Systematic Literature Review

3.1. Abstract

Purpose: Suicide deaths are a major concern in people with schizophrenia diagnoses. However, many people with such diagnoses do not attempt suicide, nor die by suicide, suggesting that some individuals are resilient to the impact of suicide triggers. This systematic literature review aimed to (1) appraise the evidence for psychological factors which confer resilience to suicidal thoughts and behaviours, and (2) categorize these psychological factors into broader psychological constructs which characterize resilience.

Methods: The review was conducted in accordance with the PRISMA guidelines for the reporting of systematic reviews. A literature search of four electronic databases (Web of Science, PubMed, PsycINFO, and MEDLINE) was conducted. A quality evaluation of the included studies was carried out by two independent researchers using a quality assessment tool.

Results: Psychological factors from 27 studies were categorized into four constructs: (1) perceived social support, (2) holding religious and spiritual beliefs, (3) identifying reasons for living, and (4) perceived positive personal skills and attributes.

Conclusions: The limited literature showed that resilience is important in understanding suicidal thoughts and behaviours in people with schizophrenia diagnoses. There is a need for prospective research that investigates moderating effects of psychological resilience in the pathways to suicidal thoughts and behaviours in people with schizophrenia diagnoses.

Practitioner points:

- Novel evidence for four psychological constructs which may confer resilience to suicidal thoughts and behaviours in people with schizophrenia diagnoses.

- Strong evidence for the impact of perceived social support and appraisals of personal skills and attributes on the severity of suicidal experiences in people with schizophrenia diagnoses.

- There was equivocal evidence for the effect of practicing or holding religious and spiritual beliefs on suicide attempts.

- Clinical practice would benefit from assessing perceived personal attributes and levels of social support from significant others and health professionals which may help identify individually informed intervention targets.

3.2. Introduction

Schizophrenia is a severe mental health problem that affects approximately 1% of people globally at some point in their lives (WHO, 2016). Around 90% of suicide fatalities are by people with mental health problems, including schizophrenia (Hawton & van Heeringen, 2009; Windfuhr & Kapur, 2011). Whilst rates of suicide fatalities in people with schizophrenia are high, suicidal thoughts and non- fatal acts are even more frequent. Epidemiological work has identified factors at a population level which increase the prevalence of suicidal thoughts, acts, and deaths, including male gender, older age, poverty, substance use, physical and mental health problems, and previous instances of suicide attempts or self-harm (Chan et al., 2016; McLean et al., 2008; Shah, et al., 2008). Psychological approaches seek to investigate mechanisms which underlie the pathways to suicidal experiences. Three prominent theoretical models of suicide, the Schematic Appraisals Model of Suicide (Johnson et al., 2008), the Cry of Pain (Williams, 1997), and the Integrated Motivational-Volitional model (O'Connor, 2011), have included perceptions of defeat, entrapment, hopelessness, social isolation, and negative self-appraisals as central in the pathways to suicidal experiences (Owen, Gooding, Dempsey, & Jones, 2015; Panagioti, Gooding, Dunn, & Tarrier, 2011; Pinikahana, Happell, & Keks, 2003; Skodlar, et al., 2008; Stravynski & Boyer, 2001; Yoo et al., 2015). Although many empirical studies have focused on identifying epidemiological suicide risk factors (De Hert et al., 2001; Hawton et al., 2005; Hor & Taylor, 2010; Kasckow, Felmet, & Zisook, 2011; Palmer et al., 2005; Pompili et al., 2007; Popovic et al., 2014), the majority of people experiencing severe mental health problems, such as schizophrenia, do not attempt or die by suicide. An alternative approach is to look at the obverse side of suicide risk and examine resilience factors which prevent vulnerable individuals from thinking about, planning, and attempting suicide (Chang, 2002; Goldsmith et al., 2002; Goubert & Trompetter, 2017; Greening & Stoppelbein, 2002; Johnson et al., 2010a; 2010b; Pirruccello, 2010; Youssef et al., 2013).

Six literature reviews have been conducted to date examining a range of factors which may confer resilience to suicidal thoughts and behaviours across different diagnostic groups. Social support, life satisfaction, positive coping skills, and resilience were identified as factors which might be protective of suicide death in the first review (Montross, Zisook, & Kasckow, 2005). However, the evidence presented was for inverse associations between positive factors and suicidal experiences which limits the understanding of complex relationships between resilience and suicidal experiences. Confidence in individuals' problem-solving skills and abilities, family connectedness and having reasons for living were found to reduce the likelihood of suicidal thoughts, behaviours,

and suicide deaths in the second review (McLean et al., 2008). Evidence for the role of positive attributional styles and high levels of agency in buffering against suicidal thoughts and behaviours was found in a third review which specifically targeted protective components of resilience (Johnson et al., 2011). This third review is important as it presents psychological factors which buffer against suicidal thoughts and behaviours, rather than inverse associations between these factors. A fourth review examined whether reasons for living, such as having survival and coping beliefs, together with moral objections to suicide, protected against suicidal ideation and attempts (Bakhiyi, Calati, Guillaume, & Courtet, 2016). It was suggested that reasons for living may reflect and correlate with resilience factors identified by the extant literature. The fifth review found that family support, reasons for living, strong cultural or religious values, social stability, optimism about recovery, compliance with treatment, shorter duration of untreated psychosis, and insight were protective against suicidal experiences (Ventriglio et al., 2016). This review included participants experiencing first-episode psychosis only which is problematic for the generalizability of the findings to other people who have experienced several psychotic episodes. Furthermore, the methods for identifying studies were not systematic. This means that important, relevant studies may have been omitted. A recent, sixth, literature review investigated the conceptualization of resilience across mental health research (Ayed et al., 2018). Resilience was broadly conceptualized first, as a process, comprising immunity, bouncing back, and growth, and second, as an individual characteristic, comprising personal resources and social resources. Importantly, none of these reviews, but one, focused on studies reporting resilience to suicidal thoughts and behaviours, specifically in people with schizophrenia diagnoses.

A clear gap in the literature is that the evidence concerning the relationship between psychological resilience and suicidal thoughts and behaviours, specifically in people with schizophrenia, has not yet been systematically evaluated. Furthermore, psychological resilience lacks a conceptual framework and precise definition (Ayed et al., 2018; Luthar et al., 2000; Pecillo, 2016), and is poorly distinguished from risk and protective factors. Protective factors are influences that alter an individual's response to an event that leads to a maladaptive outcome (Rutter, 1985). On the other hand, risk factors are distinctive features of an individual, a family, a class, or a community within a certain population, which occur prior to an outcome of interest and can be used to distinguish between high-risk and low-risk groups (Kraemer et al., 1997). Risk and protective factors can be viewed as two opposite ends of a spectrum (Breton et al., 2015). Within the context of suicide, it has been suggested that resilience is not simply the opposite of risk, but risk and resilience should

be viewed as entities which are separate, bipolar (i.e., the inverse of a risk factor can be viewed as being protective and vice versa), and internal to the individual (Johnson, 2016; Johnson et al., 2011).

Resilience has been conceptualized as a personality trait, as a process, and as an outcome (Ayed et al., 2018; Hu et al., 2015; Kalisch et al., 2015). The concepts of resilience as a process and an outcome are purported to be determined by a range of modifiable psychosocial factors, including having a purpose in life, self-esteem, self-efficacy, optimism, social support, cognitive flexibility (e.g., positive reappraisal and acceptance), and religious coping/spirituality (Helmreich et al., 2017; Kalisch et al., 2015; Mancini & Bonanno, 2009). The concept of resilience as a trait suggests that personality traits protect individuals from the impact of adverse life events and help them adjust following adversity (Hu et al., 2015). More recently, an approach integrating resilience conceptualizations as an outcome, a process, and a trait has been suggested (Ayed et al., 2018; Johnston et al., 2015; Kalisch et al., 2015; 2017; Kent et al., 2014; Norris et al., 2009; Rutten et al., 2013; Sapienza & Masten, 2011; Southwick & Charney, 2012). Consistent with extant definitions of resilience to suicidal experiences (Johnson et al., 2010a; Osman et al., 2004; Rutter et al., 2008), in the current review, resilience was defined as psychological resources, internal, personal assets, appraisals, and/or qualities which prevent suicidal thoughts and behaviours. Clinical and demographic factors, such as psychotic symptoms, age and gender, were out of the scope of this review.

There were two overarching aims of this literature review: 1. to synthesize and appraise the evidence for psychological factors which confer resilience to suicidal thoughts and behaviours in people with schizophrenia or non-affective psychoses, and 2. to categorize these psychological factors into broader constructs which characterize psychological resilience. In relation to the two overarching aims, two research questions were addressed:

1. Are there psychological factors which confer resilience to suicidal thoughts and behaviours, and if so, what is the nature of these relationships?

2. Is there evidence that any psychological factors which confer resilience may, instead, amplify or not affect suicidal thoughts and behaviours?

3.3. Materials and Methods

3.3.1. Search strategy

The review was conducted in accordance with the PRISMA guidelines (Moher et al., 2009). A literature search of four electronic databases (Web of Science, PubMed, PsycINFO, and MEDLINE) was conducted from all years until September 2018. The search strategy incorporated terms relating to schizophrenia, resilience, and suicidal experiences (see Appendix E). With respect to the resilience terms used in the search strategy, definitions in the existent psychological literature, including factors described in prominent models of suicide as promoting resilience to suicidal thoughts and behaviours, were identified (e.g., perceived social support, positive future thinking, problem solving, emotional coping, and positive self-appraisals; see Joiner, 2005; Johnson et al., 2008; O'Connor, 2011; Williams, 1997).

3.3.2. Study eligibility criteria

Studies with the following eligibility criteria were included in the review:

1. Investigating the relationship between psychological resilience and suicidal experiences.

2. Peer-reviewed, empirical studies published in English.

3. Including samples of participants aged 16 years or older or described as adults.

4. At least 50% of the participants had schizophrenia diagnoses (including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, or psychotic disorders not otherwise specified), or non-affective psychosis determined by clinical diagnostic criteria (e.g., Diagnostic and Statistical Manual of Mental Health Disorders (APA, 2013); International Statistical Classification of Diseases and Related Health Problems (WHO, 1992)) or case notes.

5. Resilience and suicidal experiences were assessed using quantitative (e.g., questionnaire studies), qualitative (e.g., interviews or focus groups), or mixed methods.

3.3.3. Study screening and selection procedure

In total, 10,920 articles were found across the four databases. Of these, 27 were relevant (see Figure 3.1 for PRISMA flow chart).
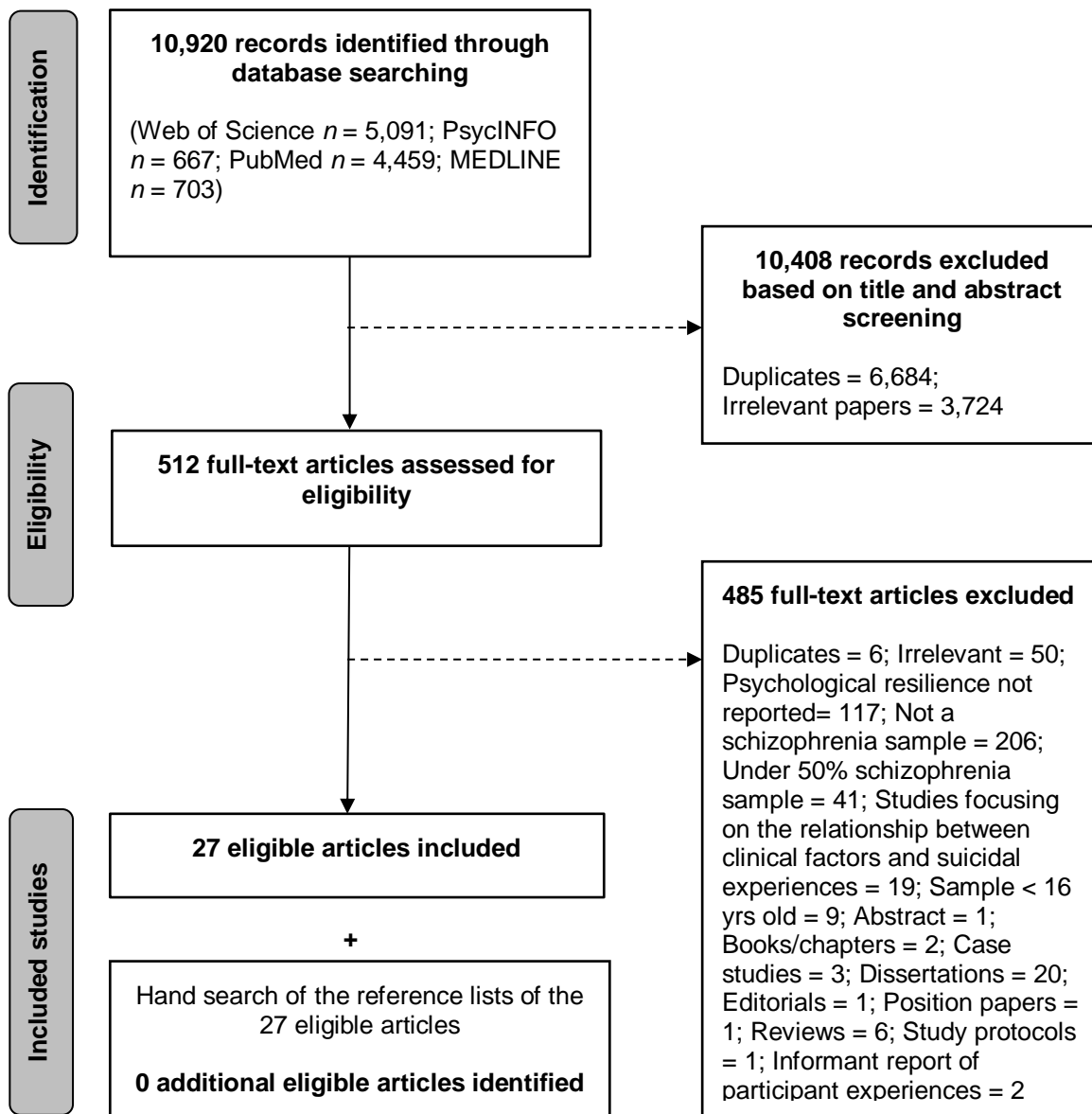
Figure 3.1. PRISMA flowchart showing the study selection process.

The study screening and selection procedure incorporated three stages, conducted by the first

author (KH). EndNote software was used to collate and manage the articles. After removing

duplicate articles, the first stage of screening included reading the titles and abstracts of all articles.

At the second stage, the full texts of the identified potentially relevant articles were further probed

for eligibility against the criteria. The third stage involved a hand search of the reference lists and

citations of the eligible articles and published reviews to check for additional relevant papers.

During article reading, relevant information for each study was extracted into a spreadsheet,

including study authors, publication year, country of publication, design, research aims, sample

size and characteristics (i.e., age, gender, diagnostic criteria), suicide-related outcomes and

measures, potential resilience factors and measures. Upon initial screening of the results, the

reported resilience factors in the studies were grouped into categories by the first author (KH).

Following discussions within the wider research team (PG, SP, GH), these were refined and narrowed down to four categories of psychological factors. A second researcher independently screened 10% of the results against the eligibility criteria to ascertain reliability of the study selection processes. Cohen's kappa showed a substantial inter-rater agreement at title and abstract screening (κ = .8) and a perfect agreement at full-text screening stage (κ = 1; Cohen, 1960; McHugh, 2012).

3.3.4. Quality assessment of the included studies

To assess the quality of the included studies, we used relevant items from the Effective Public Health Practice Project (EPHPP) tool for quantitative studies (National Collaborating Centre for Methods and Tools, 2008), the Quality Assessment Tool for observational cohort and cross-sectional studies (U.S. Department of Health & Human Services, n.d.), and the Walsh and Downe (2006) criteria for appraising qualitative studies. Two additional items were developed which probed whether the research questions of the studies were based on theory and whether the design permitted causal inferences to be made. The new, hybrid tool contained 10 items for quantitative and mixed-methods studies, nine of which were applicable to qualitative studies. A 3-point scale was adopted (0=Not at all; 1=Moderately; 2=Very much) in accord with the EPHPP tool (see Appendix F). Quality assessment of the studies was conducted by the first author and an independent researcher rated 10% of the included papers. The estimated reliability between the two independent raters was good (intraclass correlation coefficient = .88, 95% CIs [0.61– 0.99]; Koo & Li, 2016).

3.4. Results

3.4.1. Overview of the included studies

Of the 27 included studies, 21 were quantitative (17 cross-sectional; four longitudinal), three used mixed methods, and three used qualitative designs and analyses. The follow-up period in the four longitudinal studies ranged between 8 months and 11.6 years. Sample sizes across studies varied between 30 and 257,372 participants in the quantitative studies, between 19 and 115 in the qualitative studies, and between 36 and 145 in the mixed-methods studies. Most studies (n = 23) used current or previous versions of recognized diagnostic tools for characterizing participants' psychotic symptoms, such as the Diagnostic and Statistical Manual of Mental Health Disorders, Third (revised) and Fourth editions (DSM-III-R; DSM-IV; DSM-5; APA, 1987, 2000, 2013) or the International Statistical Classification of Diseases and Related Health Problems, Tenth revision

(ICD-10; WHO, 1992), whereas four studies used other methods (e.g., clinical records). To assess resilience and suicidal experiences, the studies used validated (e.g., questionnaires, such as the Beck Scale for Suicide Ideation, the Resilience Appraisals Scale) and non-validated measures (e.g., selected items from questionnaires (e.g., four items from the Youth Risk Behaviour Survey), interviews, clinical records). With respect to suicidal experiences, 13 studies examined suicide attempts, 13 examined suicidal thoughts and plans, and five investigated suicide deaths (see Appendix G).

3.4.2. Main findings

Four categories of psychological factors which characterize resilience to suicidal thoughts and behaviours in people with schizophrenia were identified. The first category was perceived social support, the second category was holding religious and spiritual beliefs, the third category was having reasons for living, and the fourth category was perceived positive personal skills and attributes.

3.4.2.1. Perceived social support

This category included six quantitative, two mixed-methods, and two qualitative studies. Six of these reported perceptions of relationships with significant others, including family and friends (Chung, Caine, Barron, & Badaracco, 2015; Gooding et al., 2013; Jarbin & von Knorring, 2004; Ran et al., 2005; Skodlar et al., 2008; Termoshuizen et al., 2012); three described findings which included relationships with mental health professionals (Chung et al., 2015; Gooding et al., 2013; Lin et al., 2014); three examined perceived social support from the community (Fossion et al., 2004; Gooding et al., 2017; Termoshuizen et al., 2012); and one reported inverse associations between high quality of social functioning and suicide attempts (Yan et al., 2013).

Lower numbers of suicide attempts in people with high levels of perceived family support and care were reported in a cross-sectional study (Ran et al., 2005). In a large record linkage study, reduced risk of suicide death was found in first-generation immigrants in the Netherlands who had perceived strong family relations and bonds with their ethnic community (Termoshuizen et al., 2012). This effect was not observed in second-generation immigrants and native Dutch participants. Likewise, in a different case–control study, perceived social cohesion within migrant communities was inversely related to suicide attempts (Fossion et al., 2004). The only longitudinal study in this category found increased satisfaction with family relationships to be negatively

associated with suicide attempts (Jarbin & von Knorring, 2004). However, this association was not observed after statistically controlling for anxiety and depression.

A mixed-methods study used a vignette describing a fictional individual with psychosis and suicidal experiences (Gooding et al., 2013). Participants were asked what would stop that individual from having suicidal thoughts, making plans, and preparing to die by suicide. Social support, in the form of being listened to by friends and family, was associated with weakening suicidal thoughts. Help from health professionals was perceived as being effective in reducing suicidal plans (Gooding et al., 2013). Corresponding with the findings of the vignette study, feeling supported by significant others and mental health professionals appeared to be associated with fewer suicide attempts among Asian immigrants in a second mixed-methods study (Chung et al., 2015). This study corroborated the findings of a cross-sectional case–control study which found that frequent and positive staff-patient interactions were associated with fewer suicide deaths in people with schizophrenia (Lin et al., 2014).

A qualitative study using phenomenological analysis found that relationships with significant others (e.g., parents, children, siblings) discouraged suicidal behaviours (Skodlar et al., 2008). The participants reported that the emotional pain that they felt would be inflicted upon their significant others if they died by suicide prevented them from attempting suicide. In the second qualitative study in this category, perceived social support from the community and social reciprocity (i.e., the desire to help others) were reported to counter stress which bolstered individual resilience (Gooding et al., 2017). This qualitative study was the only one that identified helping others as a resilience factor.

The studies in this category provided almost unequivocal evidence for perceived social support as a factor associated with reduced suicidal thoughts, plans, attempts, and deaths (see Table 3.1). Of note, in one study, perceived social quality of life had the opposite effect which should be taken into consideration (Yan et al., 2013).

Table 3.1. *Summary of the findings relating to perceived social support and suicidal experiences.*

Sources of perceived social support	Reduced suicide outcomes
Significant others (*n*=7)*	Suicidal ideation and attempts
Mental health professionals (*n*=3)	Suicidal plans, attempts, and deaths
Wider community (*n*=3)	Suicidal ideation, attempts, and deaths

Note: *Positive associations between high social quality of life and suicide attempts were reported in one study.

3.4.2.2. Holding religious and spiritual beliefs

Four quantitative, one mixed-methods, and two qualitative studies reported that holding religious and spiritual beliefs was a factor which promoted psychological resilience to suicidal experiences. These studies included having religious beliefs and affiliations (Fossion et al., 2004; Gooding et al., 2017), satisfaction with religious beliefs (Huguelet et al., 2007; Jarbin & von Knorring, 2004; Mohr, Brandt, Borras, Gillieron, & Huguelet, 2006), religious coping (i.e., using religious beliefs to cope with stressors; Gooding et al., 2017; Mohr et al., 2006; Rosmarin, Bigda-Peyton, Ongur, Pargament, & Bjogvinsson, 2013), and spirituality (i.e., seeking answers to life's meaning; Huguelet et al., 2007; Miralles et al., 2014; Mohr et al., 2006).

The first cross-sectional case–control study in this category found that Islamic religious beliefs, which included ethical objection to, and disapproval of, death by suicide, were inversely related to suicidal thoughts and attempts in first- and second-generation Moroccan immigrants residing in Belgium (Fossion et al., 2004). The second cross- sectional case–control study measured a range of personality dimensions and their relationships with suicide attempts (Miralles et al., 2014). Higher level of self-transcendence (i.e., sense of spirituality and identifying with the universe) was associated with a decreased number of suicide attempts.

A longitudinal study reported that satisfaction with religious beliefs was associated with reduced suicide attempts over time and this relationship remained significant after statistically controlling for concurrent levels of depression and anxiety (Jarbin & von Knorring, 2004). However, data were only available for 74% of the sample, making the conclusions somewhat tentative. A second longitudinal study found positive religious coping (e.g., obtaining spiritual support from religion), beliefs, and practice to be particularly helpful coping strategies which reduced both depression and anxiety but also increased psychological well-being (Rosmarin et al., 2013). The authors outlined a small sample size, high heterogeneity of comorbid symptoms, and reliance on self-report as limitations of their study.

The only mixed-methods study in this category also found negative associations between religious beliefs, spirituality, and suicide attempts (Huguelet et al., 2007). Religious beliefs and spirituality were negatively associated with suicide attempts in 28% of the people with history of suicide attempts and in 31% of the people without a history of suicide attempts. This effect operated through both ethical condemnation and disapproval of suicide and using religion as a way to cope with mental health problems. Conversely, religious beliefs amplified suicide attempts in 18% of the people with, and 3% of the people without, previous suicide attempts due to the expectation that something positive would happen after death. As the authors suggested, the findings might be limited due to the heterogeneous definitions of the concepts of spirituality and religion which were measured by an amalgamation of two scales.

There were two qualitative studies in this category. The first examined resilience to negative stressors in those who had suicidal experiences and identified religious beliefs and religious coping as important resilience promoting factors (Gooding et al., 2017). The second study found that religious beliefs and spirituality decreased suicide attempts for some participants, but for a small proportion, religious beliefs were implicated in suicide attempts due to beliefs that there was life after death (Mohr et al., 2006). Importantly, this finding provided a comprehensive understanding of the underlying psychological factors which could increase suicide attempts.

The results from the studies in this category revealed a complex relationship between religious beliefs and spirituality and suicide attempts. Holding religious and spiritual beliefs was found to both reduce and increase suicide attempts (see Table 3.2). Of note, all studies in this category reported on one type of suicide-related outcome, which was suicide attempts. Only one study included suicide deaths as an outcome.

Table 3.2. *Summary of the findings relating to holding religious and spiritual beliefs and suicidal experiences.*

Religious/spiritual beliefs	Reduced suicide outcomes
Having religious beliefs* (*n*=2)	Suicide attempts
Satisfaction with religious beliefs (*n*=3)	Suicide attempts
Religious coping (*n*=3)	Suicide attempts and death
Spirituality* (*n*=3)	Suicide attempts

Note: *Religious beliefs and spirituality were associated with increased suicide attempts in two studies.

3.4.2.3. Reasons for living

Evidence for a relationship between having beliefs about reasons for living and less frequent

suicidal experiences was found in two quantitative and one mixed-methods study. The first

quantitative study was cross-sectional and reported that people from a Latino origin, compared to a

non-Latino cohort, had higher scores on the survival and coping beliefs, family responsibility, and

moral objection to suicide subscales of the Reasons for Living Inventory (RFLI; Linehan,

Goodstein, Nielsen, & Chiles, 1983) which were related to fewer suicidal acts (Oquendo et al.,

2005). The second quantitative study was longitudinal and showed that perceptions of having

useful daily activities, which may give an individual reasons for living, reduced suicide attempts and

deaths during an 11.4-year follow-up (De Hert et al., 2001). This study included two groups of

people who died by suicide and living controls, for which collateral information was collected from

significant others and healthcare professionals. This could have potentially impacted on the validity

of the data. A mixed-methods study using interviews with Asian immigrants identified that

existential aspects of life, such as having a sense of purpose in the future, which was acquired

through caring for others, appeared to inhibit people from attempting suicide (Chung et al., 2015).

These studies, taken together, showed that identifying reasons for living can reduce certain suicidal

experiences, such as attempts and suicide deaths (see Table 3.3). However, two main issues need

to be considered. First, the samples in these studies were from specific ethnic groups (i.e., from

Latin America, Belgium, and Asia) and their results may not be generalizable to other populations.

Second, there were no qualitative studies which fit in this category. It remains to be determined the

extent to which certain reasons for living are population-specific and differ depending on the

individual's ethnic background.

Table 3.3. *Summary of the findings relating to identifying reasons for living and suicidal experiences.*

Identifying reasons for living	Reduced suicide outcomes
Items from the RFLI* (survival and coping beliefs, family responsibility, moral objection to suicide; *n*=1)	Suicide behaviours
Perceptions of having useful daily activities (*n*=1)	Suicide attempts
Having a sense of purpose in the future (*n*=1)	Suicide deaths

Note: *RFLI – Reasons for Living Inventory.

3.4.2.4. Perceived positive personal skills and attributes

This category included 12 quantitative and one qualitative study investigating the impact of perceived positive personal skills and attributes (e.g., ability to regulate behaviour and withstand pressure, perceptions of control, recovery, coping abilities, inner strength, self- esteem, temperament, and character) on suicidal experiences.

The first cross-sectional case–control study found that high levels of self-directedness were associated with a decreased number of suicide attempts (Miralles et al., 2014). Self- directedness was conceived as a personality dimension related to regulation of behaviour, purposefulness, resourcefulness, and self-acceptance (Cloninger, Svrakic, & Przybeck, 1993), closely linked to the concept of self-efficacy (Bandura & Cervone, 1983). Similarly, the second and third cross-sectional studies found negative associations between self- directedness and cooperativeness (the degree to which individuals identify with and accept others; Cloninger et al., 1993) and suicidal ideation and behaviours (Albayrak, Ekinci, & Caykoyly, 2012; Vrbova et al., 2018). Self-directedness and cooperativeness were higher in people with no suicide attempts, compared to people with a history of suicide attempts (Albayrak et al., 2012).

The fourth cross-sectional study found a negative relationship between suicidal ideation and high levels of internal locus of control (Chang et al., 2014). This suggests that individuals who perceive they have control over or the ability to influence the events in their lives may be less likely to experience suicidal thoughts (Chang et al., 2014). The fifth cross-sectional study found a negative correlation between the ability to utilize emotions and suicidal tendencies (Vishwakarma, Dwivedi, & Kumar, 2016). The authors analysed individuals' perceptions of inkblots to determine emotional functioning. The validity and reliability of this methodology have been disputed (Lilienfeld, Wood, & Garb, 2000; 2001). The sixth cross-sectional study found that perceptions of increased quality of life were associated with lower levels of suicidal ideation (Fulginiti & Brekke, 2015). When self-esteem was added as a mediator in the statistical analysis model, this association was no longer significant. The seventh cross-sectional study in this category examined the impact of self-esteem on the severity of suicidal thoughts and the number of suicidal acts (Tarrier, Barrowclough, Andrews, & Gregg, 2004). Positive appraisals of self, specifically, high self- esteem, negatively correlated with suicidal ideation, and hopelessness. However, this relationship was only statistically significant for hopelessness (Tarrier, Barrowclough, Andrews, & Gregg, 2004).

The eighth and ninth cross-sectional studies assessed the impact of perceived recovery from mental health problems on the severity of suicidal ideation (Gale, Skegg, Mullen, Patterson, & Gray, 2012; Jahn, DeVylder, Drapalski, Medoff, & Dixon, 2016). These two studies conceptualized recovery as a positive sense of self, including efficacy, determination, hopefulness, and empowerment (see Bellack, 2006). Individuals who perceived themselves to be at the highest stage of recovery, which related to a sense of growth through life experiences, were less likely to experience suicidal thoughts (Gale et al., 2012). Recovery was reported as a significant inverse predictor of suicidal ideation (Jahn et al., 2016). This relationship was significant after controlling for the severity of psychotic symptoms.

Two additional cross-sectional studies conducted moderation analyses to examine the role of resilience in weakening suicidal thoughts. In the first of these two studies, Johnson et al. (2010b) found positive self-appraisals to weaken the relationship between hopelessness and suicidal ideation. The positive relationship between hopelessness and suicidal ideation was reduced when resilience appraisals were high. In the second cross-sectional, moderational study, Wang, Weiss, Pachankis, and Link (2016) investigated the effect of emotional clarity (the ability to recognize and understand emotions), as a potential buffer in the relationship between perceived external stigma and a questionnaire measure of suicide risk severity. Perceived stigma associated with mental health problems was related to increased suicide plans and attempts but only in people with low levels of emotional clarity. Therefore, high levels of emotional clarity were proposed an important buffer in the relationship between perceived stigma and suicide behaviours.

Only one study in this category used a longitudinal design and found that perceptions of having active coping strategies did not have an impact on suicide deaths (Castelein et al., 2015). The authors did not elaborate what the active coping strategies entailed for participants.

A qualitative study (Gooding et al., 2017) corroborated the findings of a quantitative study reporting a moderating role of perceived emotional coping abilities in the relationship between hopelessness and suicidal ideation (Johnson et al., 2010b). However, resilience to general negative life stressors was examined, rather than to suicidal thoughts and behaviours specifically, which is a limitation (Gooding et al., 2017).

The studies reported a range of suicide-related outcomes, including ideation, attempts, and death (see Table 3.4). Focusing on positive appraisals of attributes, such as the ability to cope and

regulate behaviour, self-esteem, perceptions of control, and recovery, is potentially important for promoting psychological resilience to suicidal thoughts and behaviours. There was substantial heterogeneity in the assessments of perceptions of personal skills and attributes which hinders the interpretation of the results and the conclusions that can be made.

Table 3.4. *Summary of the findings relating to positive personal skills and attributes and suicidal experiences.*

Perceived positive personal skills and attributes	Reduced suicide outcomes
High levels of self-directedness (*n*=3)	Suicidal ideation and attempts
High levels of cooperativeness (*n*=1)	Suicide attempts
High internal locus of control (*n*=1)	Suicidal ideation
Ability to utilise emotions (*n*=1)	Suicidal tendency
High quality of life (*n*=1)	Suicidal ideation
Recovery from mental health problems (*n*=2)	Suicidal ideation
High levels of emotional clarity (*n*=1)	Risk of suicide death
Passive acceptance, resistance, and active responses (*n*=1)	Suicidal ideation and attempts
Self-appraisals of situation and emotional coping abilities, ability to gain social support (*n*=1)	Suicidal ideation

3.5. Discussion

This is the first literature review to critically evaluate the empirical evidence for psychological factors which confer resilience to suicidal thoughts and behaviours in those with schizophrenia, diagnoses and to categorize these factors into constructs which characterize psychological resilience.

3.5.1. Are there psychological factors which confer resilience to suicidal thoughts and behaviours?

This review found evidence for inverse associations between three sources of social support (i.e., from significant others, health professionals, and the community) and suicidal thoughts and behaviours. Social support and positive social experiences have been implicated as resilience factors to suicidal thoughts and behaviours for people experiencing different mental health problems (Ayed et al., 2018), such as PTSD (Kleiman & Lui, 2013; Panagioti et al., 2014), bipolar disorder (Kleiman & Lui, 2013; Owen et al., 2015), and depression (Bell et al., 2017; Kleiman & Lui, 2013). These findings are in line with the extant literature which suggests that social isolation and absence of social support are linked with experiences of suicidal ideation and behaviours

(Littlewood, Gooding, Kyle, Pratt, & Peters, 2016; Owen et al., 2015; Van Orden et al., 2010; Wickham, Taylor, Shevlin, & Bentall, 2014). It is important to note that perceived social support from different networks (e.g., family members, mental health professionals) can impact on an individual's perceptions of being cared for by others, and subsequently, promote resilience in the face of suicidal experiences.

The frequency of suicidal thoughts, behaviours, and deaths varies across cultures due to societal and cultural differences in the perceptions of suicidal behaviours and the extent to which these are denounced (Lester, 2013). Four studies in this review pointed towards perceived social cohesion within migrant communities and belonging to an ethnic minority group as contributing to the formation of beliefs regarding the unacceptability of suicide (Fossion et al., 2004; Gooding et al., 2017; Oquendo et al., 2005; Termoshuizen et al., 2012). Identifying with a particular ethnic group may relate to a sense of connectedness and embracing beliefs about coping abilities and the morality of death by suicide, a concept which is closely linked to religious beliefs. However, the relationships between morality, religious beliefs, and suicidal experiences remain poorly understood (McKay & Whitehouse, 2015). Together, the studies provide strong evidence for the role of perceived social support in diminishing different suicide-related experiences in people with schizophrenia. Therefore, resilience work should investigate the impact of ethnic, cultural, and community influences on suicidal experiences.

Previous studies have linked religious beliefs to a sense of empowerment, making sense of life, and the ability to cope with severe mental health symptoms (Rosmarin et al., 2013; Smith & Suto, 2012). The latter concept overlaps with the role of perceived situational and emotional coping abilities in conferring resilience to suicidal thoughts and active coping strategies identified by two studies in this review (Gooding et al., 2017; Johnson et al., 2010b). However, the findings concerning the relationships between religious beliefs and suicidal experiences should be interpreted with caution, because having such beliefs has been implicated as a potential suicide risk factor (Mohr et al., 2006). For example, negative religious coping (identifying an experienced stressor as a form of punishment from God; Pargament, Feuille, & Burdzy, 2011) has been related to increased intensity of suicidal ideation (Rosmarin et al., 2013). Furthermore, intense religious faith has been associated with poorer treatment outcomes for people with schizophrenia (Doering et al., 1998). This may be due to issues with operationalizing the concept of religious faith (Doering et al., 1998). It is worth noting that holding religious beliefs can include a sense of being part of a

community (Lim & Putnam, 2010). In other words, the impact of religious beliefs as a resilience factor may be a by-product of belonging to a specific community. Therefore, the interactions between religious beliefs, sense of community, perceptions of social support, and suicidal experiences need to be examined.

Identifying reasons for living, including family responsibilities and beliefs about survival and coping, was found to reduce the level of suicide attempts in people with schizophrenia (Oquendo et al., 2005). This outcome has also been reported in studies with people with depression (Britton et al., 2008; Luo et al., 2016). These studies highlight the potential for helping individuals who are feeling suicidal to identify reasons for living, useful daily activities, and meaning in their life as a plausible suicide prevention tactic. Only one study used a scale, specifically designed to measure reasons for living (Oquendo et al., 2005). The quantitative (De Hert et al., 2001) and mixed- methods studies (Chung et al., 2015) in this category did not use a specific measure for reasons for living and identified sense of purpose in life and having useful daily activities as reasons for living, which are somewhat broader concepts than those reported in Oquendo et al.'s (2005) study. Due to the lack of conceptual clarity and precision in the assessment of reasons for living in the included studies in this review, conclusions about their impact on suicide attempts are tentative.

Perceived positive personal skills and attributes were found to be important sources of resilience to suicidal experiences. These positive skills and attributes overlap with personal resources such as motivation and self-determination, identified in a recent systematic literature review of conceptualizations of resilience in mental health research (Ayed et al., 2018). Perceptions of competence in coping with, and controlling, emotions and difficult life events confer self-acceptance and life satisfaction (Yoo et al., 2015) which may subsequently facilitate overcoming such life events (Sharaf, Thompson, & Walsh, 2009). One of the studies in this review found no relationship between active coping style and reduced risk of suicide death (Castelein et al., 2015). This contrasts with a study reporting perceived coping ability, coupled with low levels of defeat, to reduce suicidal ideation, implicating coping ability as an important resilience factor (Johnson et al., 2010b). Other work has found a link between dysfunctional coping skills and suicidal experiences in people with mental health problems and physical illnesses (Marusic & Goodwin, 2006; Mirkovic et al., 2015). Future qualitative work could point towards more specific directions regarding the impact of coping ability on suicidal experiences.

3.5.2. Is there evidence that any psychological factors which confer resilience may, instead, amplify or not affect suicidal thoughts and behaviours?

Three studies in this review reported factors which were associated with increased levels of suicidal ideation and behaviours. The first study found that self-esteem was significantly negatively correlated with hopelessness, but not with the severity of suicidal ideation (Tarrier et al., 2004). Equivocal evidence regarding the impact of high self-esteem on suicidal experiences in people with schizophrenia has been found (Gooding et al., 2015; Johnson et al., 2011). Two studies in the current review reporting relationships between self-esteem and suicidal experiences adopted different measures of self-esteem, namely the Rosenberg Self-esteem Scale (Rosenberg, 1965) and the Robson Self Concept Questionnaire (Robson, 1989), whereas the study by Tarrier et al. (2004) used the Self- Evaluation and Social Support for Schizophrenia Interview and Scales (Humphreys, Barrowclough, & Andrews, 2001). It is plausible that conceptual clarity concerning self- esteem is lacking across these three studies due to the different options of measurement.

The second study found that perceptions of active coping strategies did not have an impact on suicide deaths (Castelein et al.,2015). The authors did not discuss the potential possibilities for this outcome. However, missing follow-up data on some variables were reported which may have affected the results (Castelein et al., 2015). It should also be noted that the study included people with a diagnosis of recent onset psychosis which can be associated with a markedly increased chance of suicide death. This could have impacted on the type of coping styles adopted by the participants (i.e., resorting to passive coping due to being unwell).

The third study found associations between high perceived social quality of life and suicide attempts (Yan et al., 2013) which is contrary to the extant literature. This effect was proposed to be a result of selection bias, as only participants under the care of mental health services were included in the study. Therefore, those individuals may have reported high perceived social support compared to individuals who were not receiving treatment from mental health services (Yan et al., 2013).

These contradictory findings in the three studies might be due to the methodologies adopted, and types of assessments and samples included. Therefore, their findings must be interpreted with caution.

3.5.3. Strengths and limitations

There are three main strengths of the current review. First, it included a systematic exploration of novel research questions which contributed to the limited knowledge base around the relationship between resilience and suicidal experiences, specifically in people with schizophrenia diagnoses. Second, it included diverse forms of empirical evidence using quantitative, qualitative, and mixed methodological designs, which enhanced its impact and relevance. Third, it ensured scientific rigour by including a reliability assessment of the study selection procedures.

Two limitations, however, warrant discussion. First, studies in the grey literature were excluded. Including the grey literature in systematic reviews has been criticized because of the lack of scientific rigour (Campanario, 1998). However, additional, potentially relevant studies could have been omitted which limits the scope of the pattern of findings reported. Second, there is little consensus about the exact definition of psychological resilience (Luthar et al., 2000; Pecillo, 2016). This review included an explicit definition, informed by the broader literature, to address this issue. That said, conceptual discrepancies may impede meta-analyses and comparisons of research outcomes across studies. It is necessary to consider the implications of these conceptual divergences in the context of both research and clinical practice (Ayed et al., 2018; Davydov et al., 2010; Robertson, Cooper, Sarkar, & Curran, 2015).

3.5.4. Clinical implications

The current review emphasized the clinical value of understanding the role of psychological resilience as a factor which inhibits the deleterious impact of suicidal experiences in people with schizophrenia diagnoses. Current clinical practice would benefit from assessing the levels of perceived social support from significant others and health professionals. Providing adequate support for those who do not feel supported, by involving their significant others (e.g., family and friends), where possible, and mental health professionals, is paramount in reducing suicide deaths. Furthermore, being able to identify reasons to live and improving appraisals of personal attributes and skills may be critical in reducing the likelihood of suicidal ideation and behaviours in people with schizophrenia diagnoses. To assess perceptions of social support, reasons for living, and personal attributes and skills, it is important to use reliable measures designed to assess these constructs. Clinical interventions should focus on nurturing positive appraisals of personal attributes which could foster psychological resilience. For example, if perceived high levels of self-esteem weaken the relationship between suicide risk factors and suicidal thoughts and behaviours,

then this type of personal attribute identifies a focus for suicide prevention interventions (Johnson et al., 2011).

3.5.5. Directions for future research

A main criticism is that most studies were cross-sectional. The issue with this approach is that inverse relationships between purported resilience factors and suicidal experiences may reflect a lack of a negative risk factor, rather than a resilience factor (Johnson et al., 2010a). It has been argued that resilience should act to moderate, or weaken, the impact of risk factors on suicide outcomes (Gooding et al., 2015; Johnson et al., 2011). None of the studies adopting longitudinal designs examined moderators or made temporal inferences regarding the relationship between resilience and suicidal experiences. Examining how resilience constructs change across time is important to identify and understand the underlying psychological resilience processes. Longitudinal and micro-longitudinal studies (Myin-Germeyset al., 2018), where measures of resilience and suicidal thoughts and behaviours change across time, are clear research objectives.

Resilience research has the potential to change the trajectory of suicide interventions by combining planning how to effectively tackle suicide risk and the associated distress, with initiatives that aim to develop psychological resilience (Mizuno, Wartelsteiner, & Frajo-Apor, 2016). This represents a paradigm shift from risk-focused to health-oriented resilience research. However, this shift is not yet established (Kalisch et al., 2015). An important, related question is whether resilience to suicidal experiences can be developed in people with schizophrenia diagnoses. A way to establish this would be to account for individual views of resilience using qualitative and mixed-methods studies.

It is unclear whether the findings of the review apply to people with schizophrenia diagnoses or whether they can be observed in other clinical groups. Future work should investigate which psychological factors, conferring resilience to suicidal experiences, are specific to schizophrenia and which are transdiagnostic (Bolton et al., 2007). According to the extant evidence, perceived high levels of social support may be a transdiagnostic source of psychological resilience (Bell et al., 2017; Kleiman & Lui, 2013; Kleiman, Riskind, & Schaefer, 2014; Owen et al., 2015; Panagioti et al., 2014). Appraisals of personal attributes, which may be affected by specific experiences, such as grandiose delusions, could be pertinent to people with schizophrenia. This proposal is speculative,

as the inverse relationship between specific appraisals of personal abilities and suicidal

experiences has not been investigated in detail.

CHAPTER 4

4. Factors that Contribute to Psychological Resilience to Suicidal Thoughts and Behaviours in People with Schizophrenia Diagnoses: Qualitative Study

4.1. Abstract

Background: Suicide is a leading cause of premature death in people with a diagnosis of schizophrenia. Although exposure to stressors can play a part in the pathways to suicide death, there is evidence that some people with a diagnosis of schizophrenia can be resilient to the impact of suicide triggers.

Aims: To investigate factors which contribute to psychological resilience to suicidal thoughts and behaviours from the perspectives of people with a diagnosis of schizophrenia.

Method: A qualitative design was used, involving semi-structured, face-to-face interviews. Twenty individuals with non-affective psychosis or schizophrenia diagnoses who had experience of suicide thoughts and behaviours participated in the study. The interviews were audio-recorded, transcribed verbatim, and examined using inductive Thematic Analysis.

Results: Participants reported that psychological resilience to suicidal thoughts and behaviours involved ongoing effort. This ongoing effort encompassed: 1. Understanding experiences (including reconciliation to mental health experiences and seeking reasons to live), 2. Active behaviours (including talking to people and keeping occupied), and 3. Relationship dynamics (including feeling supported by significant others and mental health professionals).

Conclusions: Psychological resilience was described as a dynamic process which developed over time, through the experiences of psychosis and the concomitant suicidal experiences. Psychological resilience can be understood using a multi-componential, dynamic approach that integrates buffering, recovery, and maintenance resilience models. In order to nurture psychological resilience, interventions should focus on supporting the understanding and management of psychosis symptoms and concomitant suicidal experiences.

4.2. Introduction

Schizophrenia is a severe mental health problem, associated with life-long disability, poor quality of life, and high societal and economic costs (Kirkbride et al., 2012; Millier et al., 2014). Suicide is a leading cause of premature death in people with schizophrenia diagnoses (Reininghaus et al., 2015; Walker et al., 2015). The estimated lifetime risk of death by suicide in people with schizophrenia has been reported as around 10% (Hor & Taylor, 2010). Although exposure to negative stressors can be central in the pathway to suicidal thoughts and behaviours, there is evidence that people with a diagnosis of schizophrenia can be resilient to the impact of suicide triggers (Bolton et al., 2007, Gooding et al., 2017; Johnson et al., 2011; Phillips et al., 2009). There are inconsistencies in the ways psychological resilience is conceptualised and defined (Luthar et al., 2000; Pecillo, 2016). Definitions of resilience have included conceptualisations as a trait, as an outcome, and as a process (Hu et al., 2015; Kalisch et al., 2015). More recently, multi-componential, dynamic definitions including all three conceptualisations have been proposed to fully encompass the complexity of resilience across both individual and societal levels (Kalisch et al., 2015). For example, a recent literature review identified resilience as a dynamic process, encompassing immunity, growth, and bouncing back, and as a characteristic, including personal and social resources (Ayed et al., 2018). In relation to the three conceptualisations, the current study defined psychological resilience as outcomes, attributes or processes of coping with, adapting to and rebounding from adverse events (Ayed et al., 2018; Garmezy & Masten, 1986; Kalisch et al., 2015; Wolin & Wolin, 1993).

Several studies have examined psychological resilience to suicidal experiences in people with schizophrenia (Gooding et al., 2017; Gooding et al., 2013; Johnson et al., 2008; 2010a; 2010b). A qualitative study reported a spectrum of psychological factors including passive acceptance, resistance (inner strength, getting on with things, withstanding pressure), and active responses (cognitive and emotional coping strategies) as potentially contributing to psychological resilience (Gooding et al., 2017). However, the study focused on factors which promoted resilience to negative life events and stressors (e.g., experiencing psychosis symptoms, hearing voices) as opposed to suicidal experiences, specifically. A mixed methods study found that perceived social support from friends and family countered suicidal thoughts, potentially contributing to psychological resilience (Gooding et al., 2013). A criticism of this study is that it used a vignette describing a character with psychosis and suicidal experiences, rather than examining individual

accounts of such experiences. In order to understand the concept of psychological resilience to suicidal experiences, it is essential to examine it in individuals who have had such experiences.

4.2.1. Research aim

The current evidence is limited in two ways. First, largely missing from the literature is the in-depth investigation of the unique perspectives of individuals with experiences of suicidal thoughts and behaviours, and schizophrenia diagnoses. No work to date has examined the factors perceived by people with schizophrenia diagnoses to be related to psychological resilience to suicidal experiences. Second, most studies investigating psychological resilience have primarily relied on questionnaire designs (Johnson et al., 2010a; 2010b). This methodological approach may not capture the complex relationships between psychological resilience and suicidal experiences. Therefore, the aim of this study was to examine what factors contribute to psychological resilience to suicidal experiences, from the perspectives of individuals with schizophrenia diagnoses.

4.3. Methods

4.3.1. Design

A qualitative design was used, involving semi-structured, face-to-face interviews. This interview format was considered most appropriate for addressing the research aims, due to its flexibility and the opportunity to explore perceptions and experiences as they were disclosed (Gill et al., 2008).

4.3.1.1. Participants and recruitment

The participant inclusion criteria are presented in Table 4.1. A self-selected approach to sampling was adopted (Patton, 1990). Participants with the relevant mental health and suicidal experiences (i.e., lifetime suicidal thoughts and/or suicide attempts) were recruited from the National Health Service (NHS; e.g., community, early intervention, recovery mental health services, rehabilitation units) and self-help groups. In particular, participants were identified by mental health professionals (such as care coordinators) and informed about the study. Potential participants could self-refer to the study via posters displayed at mental health services and self-help groups (e.g., Hearing Voices Network).

Table 4.1. *Participant inclusion criteria.*

Criterion	Description
1.	18 years or older
2.	Capacity to provide informed consent
3.	English speaking
4.	Schizophrenia diagnosis (i.e. schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or psychotic disorders not otherwise specified) or experiences of non-affective psychosis, confirmed by a member of the individual's mental health team
5.	Lifetime experience of suicidal thoughts and/or behaviours*
6.	Contact with an NHS mental health team

Note: *Lifetime suicidal experiences were reported by individuals who self-referred to the study themselves, or by mental health professionals who identified potential participants.

4.3.2. Procedure

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures were approved by North West - Greater Manchester Central Research Ethics Committee (17/NW/0211). Written informed consent was obtained from all participants.

A topic guide for semi-structured interviews facilitated in-depth examination of experiences (Edwards & Holland, 2013; see Appendix H for the topic guide). It was developed from a review of the literature and consultations with service users with suicidal experiences. Interviews covered three broad topics: 1. experiences of managing suicidal experiences, 2. factors which were perceived as conferring resilience to suicidal experiences, and 3. understanding of the concept of psychological resilience. Individual understanding of factors which contributed to psychological resilience were used during the interviews. This helped contextualise people's experiences of getting through times when they were feeling suicidal, providing further understanding of the concept of psychological resilience. Participants were interviewed in person by the first author. Participants also provided details about their age, gender, ethnicity, occupation, living arrangements, relationship status, and diagnosis. Before and after the interview, participants completed a visual analogue scale (VAS), ranging from 0 (lowest mood) to 100 (best mood possible), to monitor changes in mood as a result of participating in the study (Biddle et al., 2013). In addition, a risk protocol, developed collaboratively with service users, assured appropriate sensitivity to the context of interviewing participants who may experience distress following an interview. At the end of each interview, a task for inducing positive mood states was offered to

participants which aimed to minimise potential distress as a result of the interview (Biddle et al., 2013; Tarrier et al., 2010). This task included thinking about positive personal characteristics that people liked or felt proud of or remembering enjoyable activities or life events. This technique has been used by members of the research team in a range of previous studies (Owen et al., 2015; Tarrier, 2010)

4.3.2.1. Data analysis

Interviews were audio-recorded and transcribed verbatim, at which point identifying information, such as names and places, was removed. NVivo qualitative data analysis software (2015) facilitated analysis. An inductive Thematic Analysis identifying semantic and latent codes and themes across the data corpus was used (Braun & Clarke, 2006). A semantic level of analysis helped understand participants' descriptions of experiences, whereas a latent level of analysis facilitated the exploration of underlying assumptions and ideologies beyond the surface level of understanding (Boyatzis, 1998; Braun & Clarke, 2006). Thematic analysis was selected because it offers a flexible and systematic approach to examining individual experiences and perceptions (Braun & Clarke, 2006). The data analysis was conducted by KH, with SP, PG and GH contributing to critical discussions of analytic interpretations (Peters, 2010).

Two steps were taken to ensure trustworthiness of the analysis (Morrow, 2005). First, a subset of the transcripts was read and coded by members of the research team, followed by a discussion of initial codes and themes suggested by the data. Second, Braun and Clarke's checklist of fifteen strategies was followed throughout the study (Braun & Clarke, 2006). As data collection and analysis were conducted concomitantly, the topic guide was revised iteratively to include ideas arising from the analysis (Glaser & Strauss, 1967; Silverman, 2016). The formulation of codes and themes was discussed and reviewed by all authors as the study progressed. Data collection terminated when incoming data yielded no new themes and codes relevant to the research question (Guest, Bunce, & Johnson, 2006).

4.4. Results

Participants' characteristics are presented in Table 4.2.

Table 4.2. *Participant characteristics.*

Characteristic	Value
Age (years)	48 (15.5)
Years, mean (*s.d.*)	
Years, range	23-75
Gender, women: % (*n*)	50 (10)
Ethnicity, % (*n*)	
– White British	80 (16)
– Black British	5 (1)
– Mixed race	15 (3)
Occupation, % (*n*)	
– Unemployed	55 (11)
– Self-employed	5 (1)
– Retired	20 (4)
– Volunteer	5 (1)
– Student	5 (1)
Living arrangements, % (*n*)	
– Supported accommodation	25 (5)
– Rehabilitation unit	5 (1)
– Alone	40 (8)
– With family	25 (5)
– With carer	5 (1)
Suicidal experiences, % (*n*)	
– Lifetime	100 (20)
– Current (at the time of interview)	20 (4)
Duration of illness*	
– Years, mean (*s.d.*)	22.2 (13.2)
– Years, range	0.4-43
Current diagnosis, % (*n*)	
– Schizophrenia	25 (5)
– Paranoid schizophrenia	40 (8)
– Chronic schizophrenia	5 (1)
– Treatment resistant schizophrenia	5 (1)
– Schizoaffective disorder	10 (2)
– Psychotic disorder	5 (1)
– Acute psychosis	5 (1)
– Unspecified non-organic psychosis	5 (1)
Medication**	
– Clozapine	25 (5)
– Aripiprazole	40 (8)
– Quetiapine	5 (1)
– Olanzapine	10 (2)

– Zuclopenthixol	10 (2)
– Flupentixol	10 (2)
– Risperidone	5 (1)
– Fluphenazine	5 (1)
– Amisulpride	5 (1)

Note: *Based on data from 19 participants; **Some participants were prescribed two types of antipsychotic medication.

In total, 33 individuals were approached. Eighteen of those self-referred and 15 were referred to the study by mental health staff. Two of the individuals who self-referred and two who the staff referred were not eligible to participate due to having mental health problems, other than schizophrenia. A further six of the self-referred and three of the staff referred individuals withdrew prior to consenting to be interviewed for unknown reasons. The final sample comprised 20 participants. Interviews ranged between 15 and 207 minutes (*Mean* = 111 minutes; *Median* = 52 minutes). All participants reported past suicidal experiences, such as suicidal thoughts, plans, attempts, and/or self-harm. Eight participants reported past suicide attempts. Four participants were experiencing suicidal thoughts around the time of the interview.

The scores on the mood VAS ranged between 30 and 90 out of a maximum 100 at the beginning of the interview (*Mean* = 62.50; *SD* = 19.23) and between 30 and 95 at the end of the interview (*Mean* = 62.75; *SD* = 19.75). Participants reported an overall better mood after participation in the interviews.

4.4.1. Main findings

4.4.1.1. Psychological resilience as an ongoing effort

This overarching theme describes participants' perception of psychological resilience as an ongoing effort to effectively manage psychosis and the concomitant suicidal thoughts and behaviours: *"Put the effort in and you'll get there in the end…You keep going and you'll get there at the end."* (participant 2, man). Experiences of psychotic symptoms and suicidal thoughts and behaviours were reported to be inextricably linked. Therefore, ability to cope with psychotic symptoms was perceived as reducing the severity of suicidal experiences. Participants were determined to *"get on with life"* (participant 10, man) and *"carry on"* (participant 9, man), despite the intensity of their psychotic symptoms: *"… I'd have killed myself by now if I wasn't resilient.* […] *I managed to keep going, even though I was hearing voices."* (participant 14, woman). It was individuals' initiative and effort to maintain their wellbeing, which was reported to subsequently

reduce suicidal experiences: *"I'm trying to push myself to get better because the medicine will only do so much. You've got to help yourself as well."* (participant 11, man). This ongoing effort to keep well was reported to encompass three aspects: 1. Understanding experiences, 2. Active behaviours, and 3. Relationship dynamics (see Figure 4.1 for a conceptual model).

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│                   Ongoing effort to keep well                 │
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│   Understanding  │ │                  │ │   Relationship   │
│    experiences   │ │ Active behaviours│ │     dynamics     │
│                  │ │                  │ │                  │
│ • Reconciliation │ │ • Talking to     │ │ • Feeling        │
│   to mental      │ │   people         │ │   supported by   │
│   health         │ │ • Keeping        │ │   significant    │
│   experiences    │ │   occupied       │ │   others         │
│ • Seeking reasons│ │                  │ │ • Feeling        │
│   to live        │ │                  │ │   supported by   │
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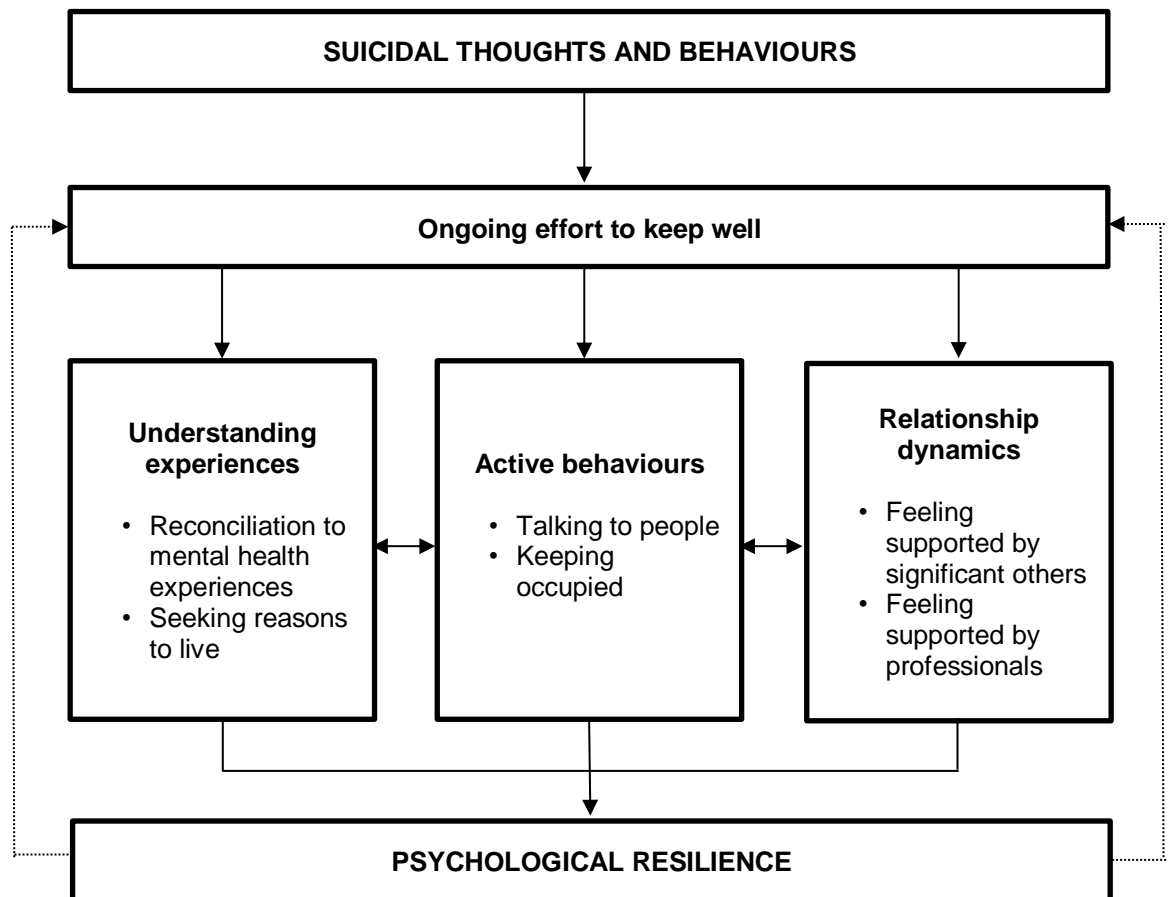
Figure 4.1. Conceptual model including factors that contribute to psychological resilience to suicidal thoughts and behaviours in people with schizophrenia diagnoses.

4.4.1.2. Theme 1: Understanding experiences

This theme highlights having an understanding of personal suicidal experiences and a purpose in life as key aspects of developing psychological resilience to suicidal thoughts and behaviours. Understanding was based on individuals' perceptions of their experiences and the different ways they made sense of these over time. The process of understanding lead to reconciliation to and acceptance of these experiences, and ultimately, finding purpose in life. These were described as active, effortful processes which took time to develop.

Reconciliation to mental health experiences

Participants reported that it was important to understand the causes of their suicidal experiences, in order to be able to address and manage them effectively:

> *"I wish I had more of an understanding on it* [suicidal experiences] *because, it's like anything, if you understand that it's wrong, in your mind you know it's wrong."* (participant 17, woman).

> *"Insight into the illness is everything because you can then say, 'right, these thoughts are happening because…"* (participant 12, woman).

For most participants, psychotic experiences, such as command hallucinations and delusions, were key contributing factors to suicidal thoughts and acts. Participants described a period of actively seeking an explanation for the origin of psychosis and the subsequent suicidal experiences, through educating themselves:

> *"I was trying really hard and I was developing insight, getting educated and thinking about myself, how's this happened to me, how did it happen, how can I stop that happening, how can I move forward."* (participant 1, man).

Having a coherent understanding of psychotic experiences was seen as an essential aspect of recognising and managing suicidal thoughts and behaviours. From participants' perspectives, psychological resilience was shaped by previous experiences of psychosis and suicidal thoughts and behaviours: *"It's just experience of the illness and the nature of the illness and know what it is and things like that."* (participant 3, man). The ability to resist the voices that were telling participants to self-harm or take their own life developed through an understanding of the mental health problem, which was absent during the initial stages of psychosis. The longer people experienced such problems, the better they perceived were able to manage them effectively:

> *"When I first got diagnosed, I did it* [self-harm] *quite a lot because it was scary seeing things in my head and that. They* [the voices] *were telling me to do that, but I know better now* […] *to challenge them, if you like, challenge the voices."* (participant 11, man).

Participants described that their ability to rationalise their experiences helped them to not go through with a suicide attempt, and in turn, contributed to psychological resilience. They underwent

a process of intermittent rationalisation, often during times of crisis, when they were able to recognise that the suicidal thoughts and behaviours were related to psychosis:

> *"I have periods – it could be five minutes in the day – that I'm rational. So, it's like convincing myself that it was my illness that was the reason I was having these thoughts and not the actual fact that I was poisoning people* […] *it was only those thoughts that were making me suicidal."* (participant 12, woman).

Participants explained that over the years of learning about and understanding the nature of their psychosis and suicidal thoughts and behaviours, they eventually became reconciled to them: *"I think it's experience. The more you experience, the more you get to understand."* (participant 9, man). Learning to live with these experiences and accepting them as part of life took time. This process emphasised the dynamic nature of psychological resilience (*"it comes, and it goes",* participant 7, woman). Participants reasoned that their suicidal thoughts did not necessarily define them as individuals but were perceived as aspects of life that they had to adapt to in the long term: *"…what you do is accept the fact that it* [the suicidal thought] *exists* […] *you just have it as an existing part of your mind."* (participant 8, man). As opposed to this active, effortful process of understanding and accepting experiences, one participant, in particular, adopted a passive approach to coping:

> *"I sort of got used to it* [the suicidal experience]. *So, I must have thought to myself, you know, this is just the way life is now. There's nothing I can fucking do about it* […] *I just accepted it."* (participant 6, woman).

The process of understanding and accepting experiences was seen as a necessary aspect of developing psychological resilience: *"*[Resilience] *is developed. Unless you experience some deep problems, you don't actually get to find out whether or not you're resilient."* (participant 14, woman).

Seeking reasons to live

Experiencing distressing psychotic symptoms can give rise to feelings of hopelessness and suicidal experiences. Participants spoke about the importance of being able to find reasons to carry on with their life in such difficult circumstances. Some people could identify something that made them feel life was worth living: *"I must have been* [resilient], *not to go through with it* [the suicide

attempt]. *I must have felt there's something worth living for."* (participant 4, man). Seeking out purpose in life was key in building psychological resilience to suicidal thoughts and behaviours. This purpose in life was unique to each case and seemed to relate to the individual's current circumstances and what they considered to be of main importance. For example, one participant described obtaining a sense of security after receiving his state pension as something worth living for:

> *"Something worth living for… in August I'm getting my state pension, so that would be a bit of extra money* […] *I'd feel a bit more secure if I got my pension 'cause that's for life, isn't it?"* (participant 4, man).

Having a sense of responsibility for significant others, such as siblings, parents or children, was perceived as a strong reason to live which protected against suicidal thoughts and behaviours. In particular, connection to significant others, and wanting to be there for them was an example of a specific reason to live:

> *"Family, especially my little brother. He looks up to me, so I need to set a good example for him. And my mum and my sister and my brother* […] *I don't want to fail them. I want them to be proud of me."* (participant 11, man).

Feeling responsibility to care for their own children was perceived as a reason to live: *"That's what kept me going, my children, and the thought of them being left without a mum."* (participant 17, woman). However, this sense of responsibility was removed from the individual when their children were no longer dependent on them. In this case, having children was no longer identified as a strong reason to live:

> *"This time was the worst because all my kids have grown up. In the past when I've been psychotic and suicidal, I've always thought, 'don't do that, the kids are only young, and you can't leave them without a mum'.* […] *But* [daughter's name] *is twenty-three now and that's why I think it was the worst."* (participant 12, woman).

Having desire to develop personally and professionally was another example of a specific reason to live which could contribute to resilience to suicidal experiences: *"I want to make a name for*

myself [...]. *I want to go back to college to learn some barbering and hopefully start working at some point again."* (participant 11, man).

Therefore, having a sense of security, responsibility to others, and a desire for personal development were reported as key precursors in determining individual reasons to live which contributed to building and maintaining psychological resilience to suicidal experiences.

4.4.1.3. Theme 2: Active behaviours

This theme encompasses a range of behaviours that participants described as helpful in coping with suicidal thoughts and behaviours and developing resilience to such experiences. These behaviours included talking to people and keeping occupied.

Talking to people

Participants explained that talking to people about their experiences of suicide was had a cathartic effect: *"It is better to tell the truth of how you feel completely… because, then you have opened up, so, get it off your chest."* (participant 15, man). Talking about these experiences was challenging due to the emotional nature of the topic: *"it's depressing – people don't like mental health problems."* (participant 9, man). However, talking to others was perceived as important and necessary for improving wellbeing and not feeling alone:

> *"I don't have any tips and pointers on how to stop feeling suicidal, other than to talk to people… I know, it might upset people but it's just, when you are having feelings of suicide, and you feel like ending it all, it's just, it can be a very lonely place."* (participant 1, man).

> *"…a problem shared, is a problem halved. It shows you are not in a boat by yourself sorta thing, so... You're not feeling this and maybe talking to someone else can help you."* (participant 3, man).

Finding out that there were other people with similar experiences, through talking, made participants feel less alone and gave them the perception that they can get through times of crisis: *"…the more I talked to people, the more I realised I weren't on my own in this bullshit; it made me feel safer and better."* (participant 6, woman).

The therapeutic effect talking had on the individual was a worthwhile endeavour, potentially reducing the psychological distress of psychotic and suicidal experiences and improving confidence: *"It* [talking] *helps a lot. It's good to mix with people and that… It gives you confidence."* (participant 9, man).

Keeping occupied ("I do anything to take my mind off suicide")

Performing daily activities and routines which required a level of concentration helped suppress thoughts of suicide. Examples were numerous (e.g., reading, listening to music, cooking, cleaning, going for a walk/to the gym, watching television, playing computer games): *"I like cooking. It just takes your mind away* […] *you need to distract yourself in some way."* (participant 2, man). Although participants identified the importance of keeping busy in countering suicidal thoughts and behaviours, they were not clear why or how this helped: *"I don't know. They* [distractions] *just do help. Don't ask me how they do."* (participant 13, woman). It is important to note that keeping busy did not completely remove the thoughts of suicide but was perceived as a way of weakening their impact on individuals: *"It* [music] *takes the edge off it* [the suicidal thought] *but doesn't completely get rid of it… it's easier to manage."* (participant 3, man). Importantly, whilst distracting activities appeared helpful in ameliorating suicidal thoughts, some participants described the opposite experience:

> *"I've got a list of things that the crisis team drew up for me* […] *like try to watch the tele or I listen to music, or have a shower… Sometimes I get to the end of the list and I've tried everything, and it doesn't work."* (participant 16, woman).

It was not clear why the identified activities which helped ameliorate suicidal thoughts were sometimes deemed as ineffective, but it appeared to relate to the perceived distress and severity of psychotic experiences:

> *"I can resist them* [the voices] *for a few days and then… I just give up fighting. Sometimes it can go on and on, and on, and I just ignore it for so long. You can only take so much before you give in to it."* (participant 11, man).

In such instances, the role of significant others and mental health professionals in supporting individuals was essential.

4.4.1.4. Theme 3: Relationship dynamics

This theme highlights the important role of significant others, such as family and friends, and mental health professionals in building individual resilience to suicidal thoughts and behaviours. It should be noted that, in some cases, feeling supported by others was instrumental in times of crisis, whereas in other, actively seeking and maintaining supportive relationships was key in coping with suicidal experiences and developing psychological resilience.

Feeling supported by significant others

Significant others were reported to have a key role in helping develop psychological resilience to suicidal experiences. Participants also emphasised the role of significant others in making them feel supported and loved which was key to building and maintaining psychological resilience to suicide:

> *"I have got a lot of support at home and a loving family, I think that helps a lot. I sometimes think to myself* […] *if* [people] *haven't got a family to support them, then that* [suicidal experience] *can affect them more."* (participant 15, man).

However, some participants felt that they lacked this source of support or felt unable to seek input from family or friends because they did not want to be perceived as a burden or to be rejected:

> *"Well, you can bounce off them* [friends]*, can't you? But if you become a pain, then you're back to suicide on your own because they just reject you."* (participant 8, man).

Feeling supported by mental health professionals

Mental health professionals were seen as having a crucial role in providing support, particularly at times of crisis or when individuals' suicidal experiences felt too severe and difficult to cope with. It was at these times that participants perceived their psychological resilience to be at its weakest. In those cases, they tended to seek support from mental health professionals, such as care coordinators or crisis teams:

"If the [suicidal] *thought's there but it's not as strong, I can just get on with my day-to-day business because I'm used to it. If it's stronger, then that's when I'll ring my CPN* [community psychiatric nurse]." (participant 11, man).

This emphasised the role of mental health services in providing support for individuals in managing their suicidal experiences: *"I'm cared for, it's the fact that the effort has been made by me and the care community around me…"* (participant 8, man).

Participants believed that, in order to maintain psychological resilience and rebound from suicidal experiences, having supportive and caring professionals was key. Furthermore, they described changes in the levels of psychological resilience in relation to the severity of suicidal thoughts and acts highlighted psychological resilience as a dynamic concept:

"But resilience is something that develops, isn't it? If you [the health professional] *are able to say to a patient, 'Look, you've been at rock bottom, you've come out. You've been resilient, you've become stronger,' it builds your confidence up."* (participant 12, woman).

Providing support when it was most needed and reminding individuals about past experiences of resilience, were aspects of care which professionals could prioritise to help strengthen psychological resilience.

4.5. Discussion

4.5.1. Main findings

This is the first study to investigate factors which contribute to psychological resilience to suicidal thoughts and behaviours from the unique perspectives of individuals with a diagnosis of schizophrenia. An important, novel contribution was that a dynamic model, capturing psychological resilience to suicidal experiences in people with schizophrenia was developed, based on the data, which has the potential to inform clinical practice (see Figure 4.1 for a conceptual model). Maintaining psychological resilience appeared to be difficult, particularly during times of being psychologically unwell, hence leaving individuals vulnerable to suicidal thoughts and behaviours. Psychological resilience to suicidal thoughts and behaviours was described as a complex, dynamic, temporal process which required substantial effort on behalf of the individual. This process included developing understanding of experiences, with respect to psychotic symptoms,

and thoughts, plans and urges to attempt suicide, active behaviours (i.e., talking to others, keeping occupied), and relationship dynamics (i.e., feeling supported by others).

A criticism of the concept of resilience is that the definitions generated in the extant literature lack precision, and the psychological mechanisms underpinning the concept are, therefore, poorly understood (Ayed et al., 2018). It has been proposed that psychological resilience mechanisms can be captured using a multi-componential, dynamic approach (Johnson & Wood, 2017; Johnson et al., 2010a; Kalisch et al., 2015). Five models can be identified, which are important in understanding psychological resilience, including the unidimensional ('two poles'), two-dimensional (buffering), recovery, maintenance, and psychological immunity models (Davydov et al., 2010; Johnson et al., 2010a; Johnson & Wood, 2017; Goubert & Trompetter, 2017; Tugade & Fredrickson, 2004; see Table 4.3 for description of the resilience models).

Table 4.3. *Description of five resilience models.*

Resilience model	Description
Unidimensional ("two poles")	Includes risk (e.g., hopelessness) at one end of the dimension and a lack of risk (e.g., no hopelessness) at the other end of the dimension.
Two-dimensional (buffering)	Includes resilience factors which weaken/moderate the relationships between suicide triggers (e.g., negative stressors) and suicidal thoughts and acts.
Recovery	Incorporates regain of psychological functioning which occurs either during or following the experience of negative events or stressors.
Maintenance	Involves an ability to sustain a positive outlook despite negative stressors, in the long-term.
Psychological immunity	Involves immunity to negative events or stressors (i.e., individuals' wellbeing is not affected by negative stressors).

The findings of this study support a multi-componential, temporally dynamic approach to understanding psychological resilience to suicide which is in accord with the five resilience models. The results suggest that the unidimensional and psychological immunity models are inadequate to explain the complex concept of psychological resilience. No participant attributed their psychological resilience to the absence of suicide triggers or to being immune to the negative impact of suicide triggers on their wellbeing. On the contrary, suicidal experiences were associated with great psychological distress which had major impact on participants' wellbeing. Instead, suicide triggers were perceived as perpetual factors, which had to be actively buffered against, in

an effort to maintain wellbeing, in the process of returning to previous levels of functioning. Therefore, a multi-componential approach to understanding psychological resilience, integrating buffering, recovery, and maintenance factors appears to be the most optimal. Developing a resilience framework from a multi-faceted theoretical and conceptual perspective clearly identifies a focus for evidence-based future resilience work (Johnston et al., 2015; Kalisch et al., 2015; Rutten et al., 2013).

In the current study, individuals indicated that psychological resilience to suicidal thoughts and behaviours developed through the experience of countering the impact of psychotic symptoms, suicidal experiences, and their influence on wellbeing. This resonated with the two-dimensional (buffering) and maintenance resilience models and with evidence from the extant literature which conceptualises psychological resilience as a dynamic process and is counter to the literature that presents it as a static entity or a personality trait (Mancini & Bonanno, 2009; Zautra, Hall, & Murray, 2010). It has been suggested that psychological resilience exists on a continuum which fluctuates to varying degrees, depending on the stressors and protective factors present during different life circumstances (Pietrzak & Southwick, 2011). Hence, an individual who is resilient to a particular suicidal experience may not necessarily continue to be resilient if the circumstances surrounding these experiences have altered. This notion further supports the proposition for a dynamic approach to conceptualising psychological resilience.

The participants in this study considered psychological resilience to suicidal experiences an effortful endeavour which included developing understanding, active behaviours, and feeling supported by others. This resonated with the two-dimensional (buffering), maintenance, and recovery resilience models and the wider research which characterises recovery from psychosis as an ongoing process rather than an end result of an absence of symptoms (Deegan, 1988; Leete, 1989). Highlighting psychological resilience as a dynamic process corroborates extant conceptualisations of resilience as an effort to integrate experiences and move forward (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014; Srivastava, 2011). For example, a qualitative study investigating experiences of first episode of psychosis identified two key themes, namely, tenacity, which required long-term effort, and rebounding (Henderson & Cock, 2015). Additional resources such as determination and support from others were described as resilience mechanisms (Henderson & Cock, 2015). The results of that study identify a potential mechanism of effortful tenacity, bouncing back, and social support (Henderson & Cock, 2015). There appears to

be a variety of inter-linked factors reported in the wider literature which overlap with the current results and may contribute to psychological resilience. The findings of the current study in relation to developing understanding and purpose, and active behaviours should be investigated more robustly in order to elucidate potential resilience mechanisms and factors to focus on when developing and maintaining individual psychological resilience, specifically to suicidal thoughts and behaviours.

Participants described that maintaining psychological resilience appeared to be difficult, particularly during times of being psychologically unwell, hence leaving individuals vulnerable to suicidal thoughts and behaviours. In such instances, actively seeking and receiving support from significant others and mental health professionals was considered of paramount importance. A particular contribution of the conceptual resilience model developed in this study related to the importance of feeling supported by mental health professionals and significant others in developing and maintaining psychological resilience to suicidal thoughts and behaviours. This aspect of perceived support is not explicitly featured in any of the existing models of resilience (Davydov et al., 2010; Goubert & Trompetter, 2017; Johnson et al., 2010a; Johnson & Wood, 2017; Tugade & Fredrickson, 2004). The role of perceived social support in reducing the severity of suicidal thoughts and behaviours is in accord with a vast body of research including individuals with severe mental health problems, such as schizophrenia, depression, anxiety, PTSD and bipolar disorder (Gooding et al., 2017; 2013; Johnson et al., 2010b; Kleiman & Lui, 2013; Owen et al., 2015; Panagioti et al., 2014). These studies indicate that feeling supported by others may be a transdiagnostic resilience factor which reduces suicidal thoughts and acts and, therefore, warrants incorporation into multi-componential models of resilience. The current findings also highlighted psychosis-specific aspects of psychological resilience, which related to understanding psychosis and the suicidal experiences which may ensue. It is possible that certain psychological factors, such as perceived social support, are part of a general transdiagnostic mechanism, applicable to different mental health problems, but other factors, such as psychosis symptoms, are moderated by aspects pertinent to a particular mental health problem (Bolton et al., 2007).

4.5.2. Limitations

The study has four limitations which warrant discussion. First, those who participated were potentially the most interested in the study topic or most willing to openly talk about their experiences, resulting in self-selection bias (Heckman, 2010). The findings, therefore, may not

reflect the experiences of those who feel less willing to discuss their experiences and who may feel less able to manage their suicidal thoughts and urges. Second, the current findings are limited by the number of individuals who took part in the interviews. This has particular implications for the generalisability of the data to other studies (Leung, 2015). Whilst saturation was achieved, indicating the data corpus was sufficient to reach its conclusions, it may not capture the full range of experiences of psychosis and suicide. Hence, further research is needed to test the applicability of the conceptual model to the wider clinical population. Third, although a maximum variation was aimed for during the recruitment of people into the study, the majority of the participants were white British, which further limits the generalisability of the findings to other cultural backgrounds. Research has shown considerable underrepresentation of Black and minority ethnic (BME) groups in mental health services (Memon et al., 2016; Suresh & Bhui, 2006). It is important to identify alternative sources of psychological resilience and strategies to facilitate access to mental health services by BME populations. This represents a clear objective for future research in this area. Fourth, only individuals under the care of mental health services were recruited into the study. These groups may have additional experiences of psychological resilience and different sources of support which were not captured, in particular their perceptions of health service staff as sources of support may be overrepresented.

4.5.3. Clinical implications

There are two main implications of this study for clinical practice. First, involving both significant others and mental health professionals in treatment plans which aim to develop psychological resilience was perceived as crucial by the participants. This was a key aspect of the conceptual resilience model developed in this study. The model could inform mental health professionals what factors to prioritise, in order to help develop and maintain psychological resilience in people. For example, professionals may play a role in consolidating previous instances of effectively coping with suicidal experiences, subsequently developing psychological resilience to future circumstance which can escalate suicidal experiences. Moreover, provision of support from mental health services should be a key consideration within suicide prevention initiatives, given that in crisis, participants relied on services when their sources of psychological resilience had depleted, and they felt unable to cope by themselves. Second, it is essential for professionals to consider the impact of psychotic experiences on the development of psychological resilience to suicidal thoughts and behaviours. Understanding people's perceptions of their mental health problems and the way they perceive them can help inform interventions (Connell, Schweitzer, & King, 2015;

Sumskis et al., 2016). It is important to recognise the effort that individuals are undergoing to develop and maintain psychological resilience, especially at times of crisis when resilience may be low, and individuals feel vulnerable. This highlights the need for planning additional mental health care support during such circumstances.

CHAPTER 5

5. Investigating the Perceived Impact of Psychosis on Suicidal Thoughts and Behaviours

5.1. Abstract

There is evidence showing a link between experiencing psychosis and suicidal thoughts and behaviours. However, individual accounts of the impact of psychosis on suicidal experiences have not been examined in detail. This study aimed to investigate the perceived impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with these experiences. Semi-structured interviews with 20 people with non-affective psychosis and lifetime experiences of suicidal thoughts and/or behaviours were conducted. Data were analysed using inductive Thematic Analysis. Based on participants' experiences of psychosis and suicidal thoughts and behaviours, three themes were identified, including 1. Psychosis experiences are immensely distressing, 2. Changes in behaviours and appraisals of self and 3. Suicidality as a means of escaping distress. A practical heuristic was proposed, describing a vicious cycle between psychological distress and changes in behaviours and self-appraisals, whereby suicidality was perceived as the only way to escape immense psychological pain. Hallucinations and delusions were central to the development of suicidal experiences. However, certain types of delusions, such as grandiose delusions, were sometimes found to reduce the intensity of suicidal experiences and associated psychological distress. It is necessary to examine the impact of psychosis on individuals, in order to assess the possibility of suicide-related experiences, as certain aspects of psychosis can have an amplifying effect, whereas others can have a weakening effect on those experiences. Minimising the immense psychological pain experienced by some people with psychosis and the inter-related suicidal thoughts and behaviours is of paramount importance for clinical practice.

5.2. Introduction

A large body of literature has identified strong associations between experiencing severe mental health problems, such as schizophrenia, and suicidal thoughts, behaviours, and suicide deaths (Hor & Taylor, 2010; Malherbe, Karayiorgou, Ehlers, & Roos, 2017; Pompili et al., 2017). Between 2006 and 2016, there were 17,150 suicide fatalities in the UK general population, 2,818 of those were by people with schizophrenia (National Confidential Inquiry into Suicide and Safety in Mental Health, 2018). Experiences of suicidal thoughts and behaviours in people with schizophrenia are even more frequent. Suicidal ideation rates of around 50% and suicide attempt rates between 20% and 40% have been reported (Bornheimer & Jaccard, 2016; Kasckow, Montross, Prunty, Fox, & Zisook, 2011). A series of studies have identified demographic factors for people with schizophrenia which contribute to suicidal thoughts, acts, and deaths, including age, unemployment and poverty (Chan et al., 2016; Hor & Taylor, 2010; Roy & Pompili, 2016). Additionally, psychological factors, including depression, anxiety, hopelessness and distress have been associated with increased severity of suicidal experiences (Hawton et al., 2005; Martin, Thomas, Andrews, Hasking, & Scott, 2015; Ventriglio et al., 2016). Substantial evidence suggests that psychosis symptoms, such as delusions and hallucinations, also strongly predict suicidal thoughts and behaviours (Bromet et al., 2017; Hor & Taylor, 2010; Kjelby et al., 2015; Martin et al., 2015). For example, a literature review of 51 studies reported positive associations between experiencing hallucinations and increased rates of suicide deaths (Hor & Taylor, 2010). Conversely, auditory hallucinations have also been reported to reduce the risk of death by suicide (Hawton et al., 2005). The reasons for the difference in evidence regarding the impact of specific aspects of psychosis and increased or decreased levels of suicidal thoughts and behaviours are unclear.

A limitation in the current knowledge base is that, although there is cumulative research evidencing a link between psychosis and suicidal experiences, there is a paucity of qualitative enquiry into individual perceptions of the severity and impact of psychosis on suicidal experiences. It is plausible that individual reports of such experiences may differ between qualitative (e.g., using interviews), and quantitative (e.g., using questionnaires) methodological designs, and understanding individuals' lived experience is an important lens that is currently absent from the literature. Therefore, the aim of this study was to investigate the impact of psychosis symptoms on suicidal thoughts and behaviours, from the perspectives of people with these experiences.

5.3. Methods

5.3.1. Study design

This was an inductive qualitative study using semi-structured, individual face-to-face interviews.

5.3.2. Procedure

5.3.2.1. Participant recruitment

A self-selected sample of participants were recruited from four UK National Health Service (NHS) mental health trusts and self-help groups in the North West of England between May and December 2017. Individuals were aged 18 or older, were English speaking, had capacity to provide informed consent, had a current diagnosis of non-affective psychosis, and had experienced suicidal thoughts and/or behaviours in their lifetime. Participants' diagnosis was confirmed by a member of their mental health team (e.g., care coordinator).

5.3.2.2. Data collection

The study was conducted after obtaining ethical approval from an NHS Research Ethics Committee (North West – Greater Manchester Central, reference: 17/NW/0211) and in accordance with the World Medical Association's Declaration of Helsinki regarding the ethics of research involving human participants (World Medical Association, 2013). Data collection commenced after obtaining participants' informed consent. The first author conducted all interviews which took place at participants' homes, university or mental health service premises, depending on individuals' preferences. The topic guide comprised open-ended questions about participants' experiences of psychosis and suicidal thoughts and behaviours (see Appendix I for the topic guide). It was developed with input from individuals with suicidal experiences.

Prior to each interview, participants were asked to provide details of their age, gender, diagnosis, ethnicity, occupation, living arrangements and relationship status. Given the sensitive nature of the topic, changes in mood as a result of participating were monitored using a visual analogue scale which was completed before and after each interview (Biddle et al., 2013). In addition, a positive mood-inducing task was completed at the end of the interview which aimed to minimise potential distress or low mood as a result of the interview (Tarrier, 2010). A risk protocol, developed with input from service users with suicidal experiences, was followed to ensure that potential distress was handled comprehensively and sensitively.

5.3.2.3. Data analysis

All interviews were audio-recorded and transcribed verbatim, and identifiable information was removed. Data were managed using a qualitative software package (NVivo, 2015) and analysed using Thematic Analysis (Braun & Clarke, 2006). An inductive approach, identifying codes and themes at both semantic and latent levels across the transcripts was adopted (Braun & Clarke, 2006; Patton, 1990). Data were analysed following a constant comparative method, whereby data collection and coding were conducted iteratively (Glaser & Strauss, 1967).

A coding framework was developed, based on data from the initial interviews, and updated throughout the data collection period. The framework helped structure the data by reducing it to a set of codes, in order to address the research aim (Gale et al., 2013). Data were collected until no new relevant codes were identified through analysis, suggesting a sufficiency of data (Guest et al., 2006).

Three steps were undertaken to ensure trustworthiness of the analysis. First, members of the research team independently coded a subset of the interview transcripts and participated in discussions about the interpretation of codes (Peters, 2010). During these discussions, potential disagreements between members were resolved. Second, all members of the research team discussed the grouping of the codes into unique themes, including codes which were different, to represent the diversity of views and experiences. Third, a checklist of fifteen strategies for conducting reliable qualitative analysis was used (Braun & Clarke, 2006). The research team members had expertise in psychosis, suicide and qualitative methodology.

5.4. Results

5.4.1. Participant characteristics

Twenty participants took part (see Table 5.1 for characteristics). Four reported experiencing suicidal ideation at the time of the interviews. For the rest of the participants, suicide-related experiences (i.e., suicidal thoughts, suicidal urges, suicide attempts) were confined to the past.

5.4.2. Qualitative findings

Based on participants' experiences of psychosis and suicidality, three themes were identified: 1. Psychosis experiences are immensely distressing, 2. Changes in behaviours and appraisals of self and 3. Suicidality as a means of escaping distress.

Table 5.1. *Participant characteristics (N=20).*

Characteristic	Range	Mean (*SD*), Median or % (*n*)
Age	23–75	48 (15.5), 48
Gender	–	50% (10) female
Ethnicity	–	
– White British		80% (16)
– Black British		5% (1)
– Mixed race		15% (3)
Living arrangements	–	
– Alone		25% (5)
– With family/partner		25% (5)
– In supported accommodation		50% (10)
Relationship status	–	
– Single		80% (16)
– In a relationship		10% (2)
– Divorced/separated		15% (3)
Employment status	–	
– Self-employed		5% (1)
– Unemployed		55% (11)
– Retired		20% (4)
– Volunteer		15% (3)
– Student		5% (1)
Age of first contact with mental health services*	14–35	27 (6.2), 28
Current diagnosis	–	
– Schizophrenia		25% (5)
– Paranoid schizophrenia		40% (8)
– Chronic schizophrenia		5% (1)
– Treatment-resistant schizophrenia		5% (1)
– Schizoaffective disorder		10% (2)
– Psychotic disorder		5% (1)
– Acute psychosis		5% (1)
– Unspecified non-organic psychosis		5% (1)

Note: *Data were unavailable for one participant.

Each theme is described and supported with interview quotes. In relation to these findings, we propose a practical heuristic that can enable professionals and researchers to understand the impact of and relationships between psychosis and suicidal thoughts and behaviours (see Figure 5.1). This heuristic encompasses two elements, namely, immense distress in relation to psychosis experiences and changes in behaviours and appraisals of self. Together, these two elements form a vicious cycle, whereby suicide is perceived as the only way to escape distress. Therefore, the third element of the heuristic includes suicide as a means of escaping the immense psychological distress.

5.4.2.1. Theme 1: Psychosis experiences are immensely distressing

Experiencing severe, long-lasting psychosis symptoms was associated with immense psychological distress which caused people to think about suicide: *"I've got these things in my arm that make crawling noises, crawling sensations and they can talk to me as well, and they can make me feel suicidal."* (040, woman). In particular, participants were experiencing paranoid delusions, and auditory, tactile or visual hallucinations which were exceptionally frightening: *"…when I saw them creepy creatures coming to my windows and stuff, then I did* [felt suicidal]. *I was like that every day and* […] *I wanted to die."* (021, woman). Understandably, these psychosis experiences put participants in a state of fear, confusion and inability to make sense of what was happening at the time: *"Horrible, horrendous, like really upset, frightened, why this was happening to me, why these voices were shouting this at me – it was awful."* (021, woman).

Some participants equated hearing voices to a constant battle with themselves to not attempt suicide: *"I was constantly battling with myself not to do it* [suicide]. […] *it was like having the Devil and the Angel on my shoulders and one was saying, 'Don't do it' and one was saying, 'Do it.'"* (025, woman). These experiences engulfed participants' lives and were perceived to have deleterious consequences, not only on their own wellbeing, but on their significant others' wellbeing, too: *"I ended up in an extremely serious situation and really upset my dad, and my dad had to learn how to deal with this, my brother had to learn how to deal with this."* (017, man). People explained that they often became overwhelmed by these intense psychosis experiences which had a major impact on them emotionally: *"…it's like an overwhelming feeling of feeling really, really, really, really desperately, desperately, desperately unhappy… it really is."* (017, man).

Escape from distress
-self-harm
-planning suicide
-attempting suicide

Immensely distressing psychosis symptoms
-hallucinations (e.g., voices)
-delusions (e.g., paranoia)

Appraisals of self
-worthlessness
-embarrassment

Behaviours
-isolation
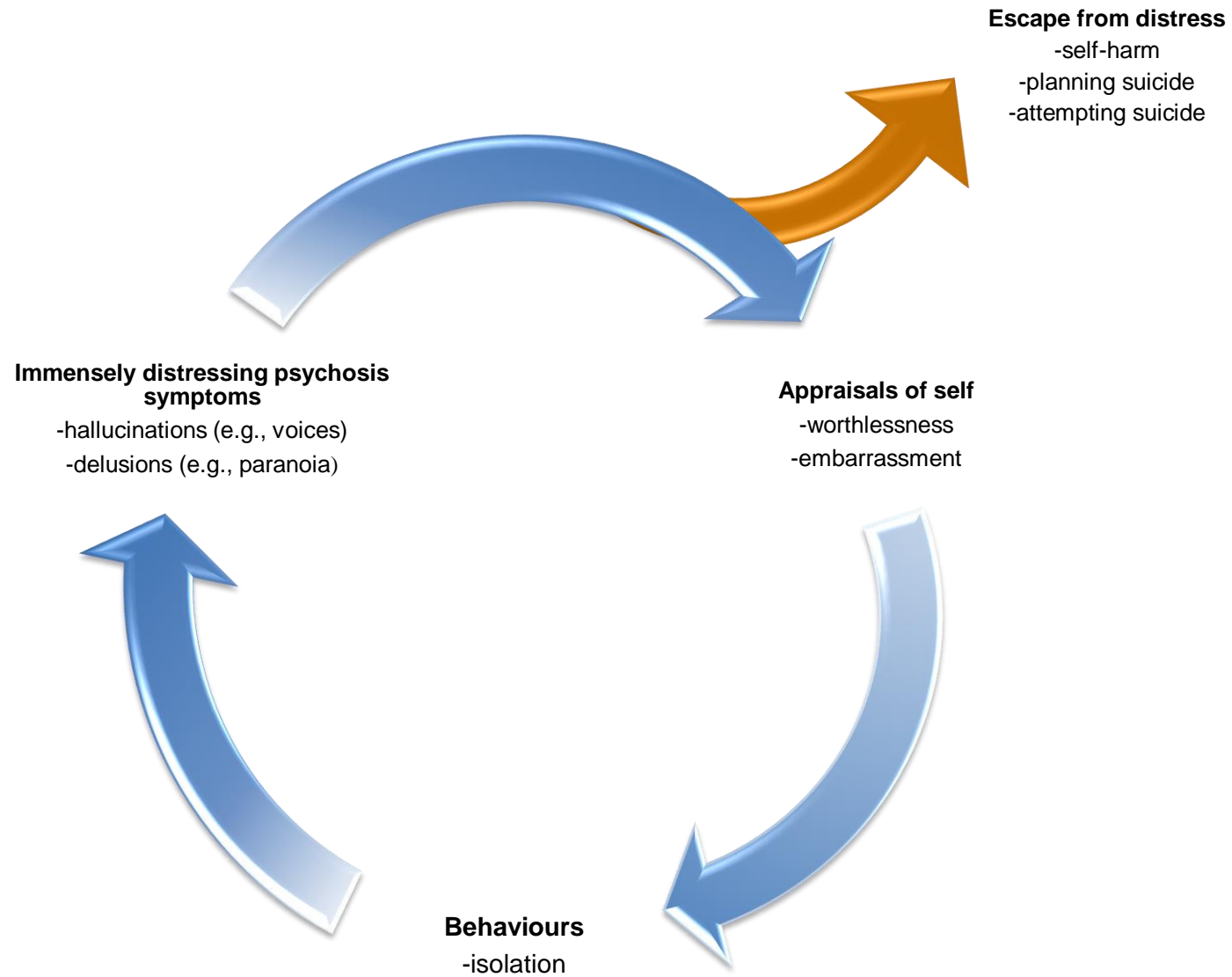
Figure 5.1. A proposed practical heuristic of the perceived impact of psychosis on suicidal thoughts and behaviours.

Conversely, certain psychosis symptoms, such as grandiose delusions were sometimes perceived to have a weakening effect on suicidal experiences: *"No, I wasn't [feeling suicidal], because it was the idea that I was related to the Queen* […] *something fantastic was going to happen."* (030, woman). Some participants explained that experiencing delusional beliefs, to an extent, could reduce their thinking about or attempts at suicide:

> *"The delusions stopped me from committing suicide.* […] *I was stopped by delusions saying* […] *the Nazis would've taken you away and that would be worse, so delusions can actually make me behave in this way, but I also had delusions that, for a period of time, stopped me."* (017, man).

Appraising the delusions and hallucinations as having a positive impact protected against suicide-related experiences: *"I kept seeing creatures* […] *them creatures were there to protect me."* (021, woman). It is important to note that these protective hallucinations and delusions were not experienced in isolation. The same individual could have varied psychosis experiences, some of which were perceived to have a protective effect, and others which were distressing: *"I would see creatures come to my window that were really horrific. They looked like they were made from charcoal, the whole skin; about four feet tall, red fire socket as eyes."* (021, woman). Despite some positive experiences, psychosis was perceived to be immensely distressing and had a tremendous, negative impact on the individual which made them feel suicidal: *"They've* [delusions] *affected it* [my life] *tremendously. I still think this guy is after me.* […] *It made me suicidal."* (019, man).

5.4.2.2. Theme 2: Changes in behaviours and appraisals of self

The immensely distressing psychosis experiences resulted in negative perceptions of the self and profound doubting of core beliefs held by participants: "*I lost confidence in my job and myself as well."* (019, man). For example, some individuals felt responsible for their psychosis. This sense of responsibility resulted in self-blame and feelings of worthlessness caused by the derogatory voices which made participants not to want to be here anymore: *"Sometimes I feel like it's my fault, everything's my fault that this is happening, so, it makes me feel worthless."* (021, woman).

Some individuals reported feeling social shame in relation to certain delusional beliefs that they held about themselves which made them feel suicidal:

"…these ideas that I was poisoning everybody, I thought, 'Oh my God, I'm going to be in the papers, I'm going to be plastered all over Facebook!' and I thought, I can't face it and I want to die. I really, really wanted to die." (030, woman).

As a consequence of the distressing psychosis experiences, participants began to isolate themselves from others and keep away from social interactions by choice, in order to avoid anticipated potential distress in relation to paranoid beliefs: "*I felt the people I used to go out with were now against me, part of this conspiracy. So, I don't go out with them.*" (019, man). People were isolating themselves from others due to concerns about being judged for experiencing psychosis: *"…I just switched off from everybody. […] you don't want to be around people, you're scared of what you might think or what they might think of you."* (021, woman).

It was not only people's appraisals of themselves which were making them feel suicidal. Sometimes suicidality was a direct cause of hearing derogatory voices:

"I would hear all the voices, 'You're useless, you're a piece of shit, you're a dick, you're a slag.' […] And I was just sat there crying, thinking I would kill myself […] I just have that feeling where I just don't want to be here. I want it all to stop, I want it all to end, I've had enough." (021, woman).

In addition to the derogatory voices, other people's negative appraisals of the participants made them feel judged and embarrassed which was particularly distressing. Psychosis and suicidality were described as stigmatising for participants because of the societal perceptions of people with these experiences:

"I slur my words a lot 'cos of the medication […] and it annoys me when they say, 'Oh, have you been drinking?' and I don't know what to say to them 'cos I've not been drinking, and I don't want to tell them I'm on tablets. […] I'm just a bit embarrassed 'cos a bit of a stigma to it, schizophrenia, isn't it?" (001, man).

"…there is so much stigma about it [suicide] […] a lot of people say, 'Oh, if you're going to do it, you'd have done it already' and they don't tend to understand that it's not like a constant, it's like an up and down feeling." (052, woman).

Consequently, this lack of understanding as a result of stigma made participants feel isolated from others and excluded from society in a way that made them feel that they no longer belonged: *"When I was ill, I was roaming round the streets on my own, shouting at the clouds with nobody to talk to, I dropped out of the social situation."* (017, male). Isolation in these cases was not by choice but a consequence of societal perceptions of mental health problems. The perceived lack of understanding and belonging made people think about suicide:

> *"I just felt like the world was going on around me and I wasn't part of it anymore, and that if I wasn't here anymore, then it'd be fine because it'd just carry on. So, why should I keep putting myself through this every day when it wouldn't matter if I wasn't alive anyway?"* (025, woman).

5.4.2.3. Theme 3: Suicidality as a means of escaping distress

The immense distress which was fuelled by psychosis, changes in behaviours and appraisals of self, led participants to want to escape and sometimes left them feeling that they had no other choice but to attempt suicide or self-harm. Some participants reported that they could hear voices telling them to take their own life which was particularly distressing: *"…he* [the voice] *commanded me to take my own life. He was telling me, 'To please me now, you're going to have to end your own life.'* […] *it wasn't very pleasant."* (025, woman). Complying with those voices by self-harming, even though maladaptive, was sometimes the only way to obtain emotional relief from the psychological distress: *"…they* [the voices] *tell me to slash my wrists* […]. *So, sometimes I just do it. It's the only way they stop."* (057, woman). Participants explained that self-harm was not a way to take their own life but a way to appease the voices: *"When I cut myself, I don't do it to commit suicide. I do it as a relief to the voices and I concentrate on that pain instead of the voices. It blocks them out a bit."* (029, man).

Suicide was viewed as a way to escape distress which was perceived to have taken over participants' lives: *"I was hopeless to choose anything else but death… There was no hope left other than suicide."* (022, man). Following a prolonged period of experiencing immense psychological distress, attempting suicide was perceived to be the only way to escape:

> *"That was my decision, to kill myself, to stop the thing, to keep my free will… I was exercising my free will as a man, to kill myself and take away the option that these beings, or whatever it was, had over me."* (022, man).

Having a suicide plan, in case they could no longer cope with the immense distress, could provide a temporary relief: *"I've got a plan now. I'll always have that plan as a back-up just in case something happened."* (019, man). However, fear of the consequences of a suicide attempt was a concern for the participants. For example, potential physical disability and being in a worse position as a result of a suicide attempt prevented some people from attempting suicide: *"Suppose if I'm crippled and didn't die, and I was a cripple all my life. If you throw yourself off a bridge, there's no guarantee it will kill you, is it?"* (019, man).

5.5. Discussion

This study examined the impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with schizophrenia and non-affective psychosis. There are two important and novel contributions of this study. The first one is the emphasis on the profound, deleterious impact of psychosis on individuals' wellbeing which led to suicidal thoughts and behaviours. Importantly, experiencing psychosis was perceived as immensely distressing. Associations between psychosis, distress and suicidality have been reported in previous studies using quantitative methodologies (Fialko et al., 2006; Griffiths, Mansell, Edge, & Tai, 2018; Martin et al., 2015; Mawson, Cohen, & Berry, 2010; Simms, McCormack, Anderson, & Mulholland, 2007; Startup, Freeman, & Garety, 2007) but people's views on the specific sources of distress and its impact on suicidal thoughts and behaviours have been inadequately researched (Andrade et al., 2016). A qualitative study using phenomenological analysis examined the perceptions of suicidal ideation in people with schizophrenia (Skodlar et al., 2008). Feelings of inferiority, solitude and inability to relate to others were reported to be associated with suicidal ideation. Those results converge with the feelings of worthlessness and isolation reported in the current study. However, appraisals of the impact of specific psychosis symptoms on suicidality were not investigated in the former study.30 The isolation and worthlessness experienced as a result of psychosis, coupled with the immensely distressing delusions and hallucinations led to a vicious cycle from which a suicide attempt was seen as the only way of escaping.

The second, novel contribution relates to the potential protective effect of certain psychosis experiences against suicidality. Although this study identified a clear link between psychosis, distress and increased suicidal thoughts and behaviours, the participants reported that specific delusions, such as grandiosity, reduced the likelihood of thinking about or attempting suicide. It is important to note that it is the subjective appraisal of the relentless psychosis-related intrusions that

were perceived to weaken or amplify suicidal thoughts and behaviours and the associated psychological distress. There is evidence for inverse associations between delusions and suicidal experiences in the extant literature. For example, experiencing delusions of reference, persecution and grandiosity, and a reduced risk of suicide attempts and death have been reported in two studies using quantitative methods (Fialko et al., 2006; Madsen & Nordentoft, 2011). Furthermore, a meta-analysis identified auditory hallucinations and delusions to be inversely associated with risk of suicide death (Hawton et al., 2005). However, these findings were based on only three studies, two of which included poorly described control groups (Hawton et al., 2005). Furthermore, these studies were highly heterogenous, making the evidence less robust (Hawton et al., 2005). These studies have used quantitative methodological designs to assess the relationships between psychosis symptoms and suicidal experiences which could have yielded different results, compared to studies using qualitative methods. Nevertheless, the findings have clear clinical applications for interventions that aim to reduce the rate of suicidal experiences in people with schizophrenia. Considering the divergent findings in the literature, careful assessment and understanding of the nature of psychosis on an individual level is necessary to fully explain the links between specific types of delusions and hallucinations and different suicidal experiences. Furthermore, theoretical models of suicide incorporating the impact and appraisals of specific psychosis symptoms on the development of suicidal thoughts and behaviours is warranted. Although many contemporary psychological models of suicide are transdiagnostic (Johnson et al., 2008; Joiner, 2005; O'Connor, 2011; Williams, 1997), none of them consider the role of psychosis in the pathways to suicidal thoughts, attempts and deaths. Factors that are pertinent to specific mental health problems (e.g., hallucinations as part of psychosis) but also operate across mental health problems (e.g., psychological distress, low self-esteem) should be included in such models (Bolton et al., 2007).

The current study also found that having a suicide plan and self-harming provided, to an extent, temporary emotional relief from psychological distress. Having a suicide plan is associated with more lethal suicide attempts and a greater suicide risk and is, therefore, considered a clinical emergency (Brown, Henriques, Sosdjan, & Beck, 2004; Coryell & Young, 2005; Nakagawa et al., 2009). Participants in this study reported that the unbearable fear of the consequences of their beliefs (e.g., being prosecuted and imprisoned) was a reason for having a suicide plan. In those cases, the suicide plan provided a relief from the distressing anticipation of a future event which was a potential precipitant of the enactment of the suicide plan. Self-harm was perceived as a way

to appease the immensely distressing hallucinatory voices. Escape from negative emotions and immediate relief of negative feelings following self-harm have been reported previously (Klonsky, Victor, & Saffer, 2014; Rodriguez-Blanco, Carballo, & Baca-Garcia, 2018; Taylor et al., 2017). Despite this type of temporary emotional relief, self-harm can lead to increased psychological distress and rumination in the long term (Buelens, Luyckx, Gandhi, Kiekens, & Claes, 2019). Self-harm and planning a suicide attempt have been associated with depression, hopelessness, mortality and recurring suicidal behaviours (Baca-Garcia et al., 2001; Groholt, Ekeberg, & Haldorsen, 2000; Hawton & van Heeringen, 2009). Therefore, the role of both self-harm and planning a suicide attempt on the enactment of those plans clearly needs further investigation to ultimately inform the design of effective suicide prevention interventions.

5.5.1. Strengths and limitations

There are four key strengths of the current study. First, a rigorous qualitative methodological approach was employed. Research investigating the perceived impact of psychosis on suicidal experiences has tended to rely on quantitative measures which were predetermined by clinicians or researchers (Taylor et al., 2010a). This limits the level of detail of understanding the psychological mechanisms underlying suicidality. Asking individuals about the experiences they perceived as contributing to suicidal thoughts and behaviours ensured that key precursors, which were deemed important to the individual, were examined. Second, the contributions of a group of people with experiences of suicidality to the design of the study should be noted. This results in research that has a genuine impact from scientific, lay public, and clinical practice perspectives (Darling & Parra, 2013). Third, the study involved a diverse sample of individuals of different ages, diagnoses and length of contact with mental health services which contributed to the richness of the data. Fourth, the study proposed a practical heuristic that can enable professionals and researchers to understand the impact of and relationships between psychosis and suicidal thoughts and behaviours.

There were three limitations of the current study which must be taken into consideration. First, participants were recruited from the North of England. This region has the highest number of people in contact with mental health services in England (Baker, 2020) which may suggest overrepresentation of the sample. Second, the lack of ethnic diversity in the sample needs to be considered, as the findings relate primarily to people from a white British background which has implications for the clinical utility of the results. Third, the study relied on accounts of suicidal

thoughts and behaviours that, for most, had occurred months or years before the interviews. Individual reports could be influenced by the saliency and recency of events and the proposed heuristic may not capture the full range of ways psychosis impacts in the moment of suicidal thoughts and behaviours. However, including individuals in the sample whose suicide experiences were not current allowed for people's reflections on their paths to suicidality over time since the suicidal crisis had occurred, which may have enabled the discovery of a range of protective and precipitating factors.

5.5.2. Clinical implications

There are four clinical implications of this study. First, this study can help identify points of intervention that were directly informed by participants' experiences of psychosis and suicidality and included in a practical heuristic (see Figure 5.1). Experiencing psychosis was reported as immensely distressing. Efforts to develop interventions that target understanding and reducing psychological distress in relation to psychosis are of paramount importance (Chadwick, 2006; Tarrier et al., 2013). Second, participants attributed their suicidal thoughts and behaviours to experiencing distress in relation to psychosis, isolation, and worthlessness which were fuelled by derogatory voices, visions and delusional beliefs. Therefore, it is essential for clinicians to consider the perceived impact of these factors as key precursors to suicidal thoughts and behaviours. Understanding individuals' appraisals of self and their mental health problems may help optimise suicide prevention initiatives (Connell et al., 2015). Third, having a suicide plan and self-harming were reported as a means of escaping the immense psychological distress. Providing people with alternative ways of coping with distress, such as developing a sense of control or agency, is a clear treatment target. Fourth, participants reported specific delusions that were perceived to reduce suicidal experiences. There is no consensus regarding the role of certain positive symptoms of psychosis in protecting against the development of suicidal thoughts or behaviours. Hence, individual-specific symptoms perceived to be reducing or increasing the severity of suicidal experiences should be carefully monitored.

5.5.3. Conclusion

The results emphasised the importance of considering psychosis experiences and self-appraisals as precursors to suicidal thoughts and behaviours, and as a source of immense psychological distress. Therefore, minimising the tremendous psychological pain associated with relentless psychosis experiences is of paramount importance for clinical practice. It is necessary to explore

aspects of psychosis, in order to assess the possibility of suicide outcomes, as certain aspects can have an amplifying or a weakening effect on suicidality. The current study proposed a potential practical heuristic of participants' experiences of psychosis and suicidal thoughts and behaviours, including three elements, namely, psychosis as immensely distressing, changes in behaviours and appraisals of self, and suicide as a means of escaping immense psychological distress. The first two elements formed a vicious cycle where suicide was perceived to be the only way to escape distress.

CHAPTER 6

6. The Long-Term Relationship Between Psychological Resilience, Psychosis, Distress and Suicidal Thoughts and Behaviours

5.1. Abstract

Suicide deaths in people with non-affective psychosis represent a major health care concern. Previous research has shown that psychosis and the associated distress increase suicidal experiences, whereas psychological resilience weakens the impact of suicide precursors, such as defeat, entrapment and hopelessness on suicidal experiences. The moderating roles of psychosis, the associated distress and psychological resilience in the relationships between defeat, entrapment, hopelessness and suicidal thoughts and behaviours have not been tested longitudinally. This three-month longitudinal study used moderated mediation analysis to investigate: i. the impact of defeat/entrapment and hopelessness on suicidal thoughts and behaviours, and ii. the moderating effects of psychosis, distress and psychological resilience in the relationships between defeat/entrapment, hopelessness and suicidal thoughts and behaviours. Individuals with non-affective psychosis-related diagnosis (including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or psychotic disorders not otherwise specified) and lifetime experiences of suicidal thoughts, plans and/or acts were recruited across the North-West of England, UK. Of the 100 participants at baseline, 90 took part in the follow-up assessment. At baseline, most participants had experienced one or more lifetime suicide attempts. Suicidal thoughts and behaviours scores were significantly lower at follow-up, compared to baseline. Over time, defeat/entrapment predicted suicidal thoughts and behaviours when the severity of psychosis and the associated distress were moderate and high, and resilience was low. The impact of defeat/entrapment, psychosis, distress due to psychosis and resilience needs to be incorporated into interventions aiming to reduce suicidal experiences. These findings impact psychosis and resilience-focused suicide prevention interventions for people with non-affective psychosis.

5.2. Introduction

Schizophrenia is a severe mental health problem which affects people globally (WHO, 2012). It increases the risk of premature mortality (Walker, McGee, & Druss, 2013) and is estimated to shorten life expectancy by approximately 20 years (Laursen, Nordentoft, & Mortensen, 2014). People with a diagnosis of schizophrenia are at an increased risk of suicide death and suicidal thoughts and attempts, compared to the general population. In 2018, there were 6,507 suicide deaths in the UK and 48,344 in the USA (Office for National Statistics, 2019; Xu, Murphy, & Kochanek, 2020). Meta-analytical studies have reported that between 5% to 10% of people with a diagnosis of schizophrenia die by suicide (Hor & Taylor, 2010; Palmer, Pankratz, & Bostwick, 2005). In comparison, the risk of suicide death in people without mental health problems is 0.3% (Holmstrand, Bogren, Mattisson, & Bradvik, 2015). There are epidemiological risk factors for death by suicide in people with schizophrenia, such as gender, age, unemployment and poverty but these can be amplified by psychosis (e.g., delusions, hallucinations; Chan et al., 2016; Hawton et al., 2005; Hor & Taylor, 2010; Pompili et al., 2007; Popovic et al., 2014; Roy & Pompili, 2016; Tandon & Jibson, 2003).

The relationship between psychosis and suicide-related experiences has been extensively investigated and studies highlight psychosis as a putative amplifier of suicidal thoughts and behaviours (Bornheimer, 2016; Bornheimer & Jaccard, 2017; Bromet et al., 2017; Connell et al., 2016; Fisher et al., 2013; Fialko et al., 2006; Fujita et al., 2015; Johnson et al., 2008; Kelleher, Cederlof, & Lichtenstein, 2014; Kjelby et al., 2015; Narita, Wilcox, & DeVylder, 2020; Saha et al., 2011; Sharifi et al., 2015). Furthermore, individuals with psychosis are vulnerable to distress due to psychosis (Mawson, Cohen, & Berry, 2010). Previous research has indicated that suicidal experiences may be a consequence of the psychological distress caused by delusions and hallucinations (Ventriglio et al., 2016). One study found that the presence of psychosis alone did not predict future risk of non-suicidal self-injury and suicide attempts but psychosis, combined with the associated psychological distress, were strong predictors (Martin et al., 2015). It is important to consider both the presence of psychosis and the associated distress in pathways to suicidal thoughts and acts.

Psychological and epidemiological risk factors on their own do not offer a comprehensive understanding of the psychological mechanisms underpinning suicidal experiences (Bolton et al., 2007; Laursen et al., 2014; Nock et al., 2008). Resilience factors that buffer against suicidal

thoughts and behaviours have not been studied as rigorously, nor as frequently, as risk factors (Malla & Payne, 2005). In the context of suicide research, one definition of psychological resilience is positive self-appraisals that buffer against the deleterious impact of a range of internal and external negative stressors on suicidal experiences (Johnson et al., 2010b).

Contemporary psychological models of suicide have implicated factors that buffer against suicide precursors (e.g., hopelessness, defeat, entrapment) in the development of suicidal thoughts and behaviours (Gilbert & Allan, 1998; Johnson et al., 2008; Williams, 1997). For example, the Cry of Pain model includes perceived social support and positive future thinking as moderators of the relationship between entrapment and suicidal thoughts and behaviours which reduce the risk of suicide death (Williams, 1997). The Schematic Appraisals Model of Suicide builds on the Cry of Pain model and has identified positive self-appraisals (i.e., perceptions of high social support, emotion regulation and problem-solving abilities) which reduce the likelihood of developing hopelessness, defeat, entrapment, and subsequent suicidal thoughts and behaviours (Johnson et al., 2008). Previous studies have highlighted issues of conceptual overlap between defeat and entrapment. For example, O'Connor (2003) found that defeat and entrapment were not independent predictors of suicidal experiences and should be defined as a single construct (Forkman, Teismann, Stenzel., Glaesmer, & de Beurs, 2018; Griffiths, Wood, Maltby, Taylor, & Tai, 2014; Panagioti et al., 2012; Taylor et al., 2010a; 2010b; Taylor et al., 2009). Therefore, models including defeat/entrapment as a composite and as separate predictors were tested in this study.

There are two gaps pertaining to the current empirical knowledge. The first is the lack of longitudinal research examining the amplifying effect of psychosis and the associated distress in the relationships between defeat, entrapment, hopelessness and suicidal thoughts and behaviours, using moderated mediation models. The second one relates to understanding the extent to which psychological resilience can buffer these relationships. Consequently, this study tested two hypotheses:

3. Delusions and hallucinations will amplify the relationships between: i. defeat/entrapment and hopelessness, ii. hopelessness and suicidal thoughts and behaviours, and iii. defeat/entrapment and suicidal thoughts and behaviours, whereas psychological resilience will weaken the strength of these relationships.

4. Psychological distress associated with delusions and hallucinations will amplify the relationships between: i. defeat/entrapment and hopelessness, ii. hopelessness and suicidal thoughts and behaviours, and iii. defeat/entrapment and suicidal thoughts and behaviours. In contrast, psychological resilience will weaken the strength of these relationships.

Three additional exploratory analyses assessed the relative contribution of: i. defeat and entrapment as separate predictors, ii. delusions and hallucinations as separate moderators, and iii. distress associated with delusions and hallucinations as separate moderators in the model.

5.3. Methods

6.3.1. Design

A longitudinal design with a three-month follow-up period was adopted. A moderated mediation analysis was used, including defeat/entrapment as a predictor at baseline, hopelessness as a mediator at follow-up, and suicidal thoughts and behaviours as an outcome variable at follow-up. Psychosis, distress, and resilience were moderator variables measured at baseline. Baseline hopelessness, baseline suicidal thoughts and behaviours, and follow-up depression scores were controlled for. The STROBE guidelines for reporting observational studies was used (Cuschieri, 2019).

6.3.2. Participants

Individuals were recruited into the study between April 2018 and May 2019, based on the following inclusion criteria:

1. Experiences of non-affective psychosis or a diagnosis of schizophrenia (including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or psychotic disorders not otherwise specified).

2. Lifetime experiences of suicidal thoughts and/or behaviours.

3. 18 years or older.

4. English-speaking.

5. Capacity to provide informed consent.

6.3.3. Measures

Beck Scale for Suicide Ideation (BSS; Beck & Steer, 1990). The BSS is a 21-item scale assessing suicidal thoughts, planning and intent in the past week. For each item, respondents can choose between three options (e.g., "I have no wish to die", "I have a weak wish to die" or "I have a moderate to strong wish to die"). The scale has been reported to have high internal consistency (α=.96) in a sample of people with psychosis (Pinninti et al., 2002). Cronbach's alpha in this study was .94.

Beck Hopelessness Scale (BHS; Beck et al., 1974). The BHS is a 20-item scale designed to assess the presence of hopeless thoughts and beliefs in the past week. Example items includes: "My future seems dark to me," to which respondents can answer with "True" or "False". The scale had high internal consistency (α=.93) in a study including people with schizophrenia (Tarrier et al., 2004). Cronbach's alpha in this study was .92.

Defeat and Entrapment Scales (Gilbert & Allan, 1998). The scales contain 16 items each measuring feelings of failed struggle (e.g., "I feel that I am one of life's losers"), being trapped and the desire to escape (e.g., "I am in a situation I feel trapped in"). The Defeat scale assesses experiences in the past week, whereas the Entrapment scale does not have a specified time frame for completion. Both are measured on a five-point scale. The defeat scale ranges from "Never" to "Always/all the time", whereas the entrapment scale ranges from "Not at all like me" to "Extremely like me". The internal consistency was .86 for the Defeat scale and .94 for the Entrapment scale in a study including people with schizophrenia (Taylor et al., 2010a). Cronbach's alpha in this study was .91 and .93 for the Defeat and Entrapment scale, respectively.

It is important to note that due to conceptual overlap, a composite measure of defeat and entrapment was used in the main mechanistic model. The composite measure was created by summing the total scores of the Defeat and Entrapment Scale. This decision was based on previous research (Johnson et al., 2008; Panagioti et al., 2012; Taylor et al., 2010a; 2010b) which has conceptualised defeat and entrapment as a single psychological construct. Exploratory analyses including defeat and entrapment as separate predictors were also conducted.

Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987). The PANSS is a structured clinical interview which measures the severity of positive and negative psychosis symptoms, and general psychopathology in the past week. Items are scored on a scale between 1 and 7 (highest

severity of symptoms). It had a good internal consistency in a sample of people with schizophrenia (α=.71; Edgar et al., 2014). Cronbach's alpha in this study was .82. A co-occurrence of experiences of delusions and hallucinations is observed (Maher, 2006). Little is known about the cumulative effect of experiencing both hallucinations and delusions on suicidal ideation (Bornheimer et al., 2019). Therefore, the model was tested with delusions and hallucinations separately and combined to tease apart any potential differences and cumulative effects on suicidal thoughts and behaviours. Only the PANSS items assessing delusions (P1) and hallucinations (P3) from the positive symptoms subscale were included in the analysis. The scores on these items were added up to create a composite psychosis delusions and hallucinations variable.

Psychotic Symptom Rating Scales (PSYRATS; Haddock et al., 1999). The PSYRATS are two semi-structured interviews which assess perceptions of hallucinations and delusions in the past week. The auditory hallucinations scale contains 11 items assessing frequency, duration, controllability, loudness, location, amount and intensity of distress, amount and degree of negative content, beliefs about the origin of voices, and disruption caused by voices. The delusions scale contains six items assessing duration and frequency of preoccupation, amount and intensity of distress, conviction, and disruption. The scales have high internal consistencies in a study with people with mild and moderate intellectual disabilities (auditory hallucinations scale α=.88; delusions scale α=.94; Hatton et al., 2005). Cronbach's alpha in this study was .96 and .93 for the auditory hallucinations scale and delusions scale, respectively.

Psychological distress with accompanying psychosis experiences are important predictors of non-suicidal self-injury and suicide attempts (Martin, Thomas, Andrews, & Hasking, 2015). Previous research has indicated that suicidal behaviours may be due to the distress caused by psychosis experiences (Ventriglio et al., 2016). A study with adolescents found that psychosis experiences alone did not predict future risk of non-suicidal self-injury and suicide attempts (Martin, et al., 2015). In this study, only the PSYRATS items assessing the amount and intensity of delusions distress (items 4 and 5) and auditory hallucinations distress (items 8 and 9) were included in the analysis. In line with the second hypothesis, the model was tested with delusions and hallucinations distress items combined. The scores on these items were added up to create a composite delusions and hallucinations distress moderator variable. An additional exploratory analysis included the delusions and hallucinations distress items as separate moderators, in order to tease apart any potential differences in their effect on suicidality.

Resilience Appraisals Scale (RAS; Johnson et al., 2008). The RAS is a 12-item scale consisting of three, four-item positive self-appraisals subscales, namely, perceived ability to cope with emotions, difficult situations, and gain social support. The scale does not have a specified time frame for completion. An example of an item from the emotion coping subscale includes: "I can control my emotions", an item from the situation coping subscale includes: "I can generally solve problems if they occur", and an item from the social support subscale includes: "My family and friends are very supportive of me." Items are scored on a five-point scale ranging from "Strongly disagree" to "Strongly agree". The scale has a high internal consistency in a sample of people with schizophrenia (α=.88; Johnson et al., 2008). Cronbach's alpha in this study was .83.

Calgary Depression Scale for Schizophrenia (CDS; Addington et al., 1990). The CDS is a nine-item observer rated measure of depression over the past two weeks. It was specifically designed for people with severe mental health problems, including schizophrenia. Example item includes: "How would you describe your mood over the past two weeks?" Items are scored from 0 (Absent) to 3 (Severe). Items are scored from 0 (Absent) to 3 (Severe). The scale has good internal consistency in a sample of people with schizophrenia (α=.79; Addington, Addington, Maticka-Tyndale, & Joyce, 1990). Cronbach's alpha in this study was .81.

6.3.4. Procedures

This study received ethical approval by the North West-Greater Manchester Central Research Ethics Committee (18/NW/0181). Participants were recruited from UK National Health Service mental health trusts in Northern England. The author (KH) attended mental health team meetings to disseminate information to mental health professionals who referred potential participants to the study. In addition, individuals were able to self-refer to the study via information leaflets displayed within services (e.g., waiting rooms) and contact KH directly. Potential participants were provided with a study participant information sheet. At least 24 hours after receiving the information sheet, KH contacted the potential participants to ascertain whether they wanted to participate in the study. If they agreed, KH arranged a convenient time and place to meet and obtain participants' informed consent and complete the measures. The measures were counterbalanced across participants. Half of the participants completed the clinical interview, followed by the questionnaires, and the other half completed the questionnaires, followed by the clinical interview. After three months, participants were asked to complete the same measures. Participants were offered a compensation of £10 upon completion of each assessment.

6.3.5. Statistical analysis

Estimating the power in studies testing mediation models is complex and requires computationally intensive methods (Aberson et al., 2020; Zhang, 2014). Moreover, power analysis tools for conditional process models that integrate mediation and moderation are currently lacking (Aberson et al., 2020). Therefore, a formal power analysis was not conducted. Previous studies testing moderated mediation models with people with schizophrenia have used sample sizes of between 89 and 170 participants (Lam, Raine, & Lee, 2014; Lien et al., 2017; Nakagami, Xie, Hoe, & Brekke, 2008). These sample sizes were used as a guide in this study.

The variables included in the analysis were screened for normality and multicollinearity (Menard, 1995). The z-scores for the skewness and kurtosis of the variables were calculated for which skewness and kurtosis scores were divided by their standard errors. Values greater than ±1.96 indicate a non-normal distribution (Field, 2013). Pearson's correlation coefficients for normally distributed data and Spearman's rho for non-normally distributed data were used to explore associations between variables. Relationships between variables are considered strong if their correlation coefficients are greater than .7 (Lance, Butts, & Michels, 2006).

Paired t-tests were used to ascertain potential significant differences in the scores for the baseline and follow-up variables (i.e., suicidal thoughts and behaviours, hopelessness, defeat, entrapment, depression, psychosis severity, psychosis distress and resilience). Bootstrapping was used for the t-tests and moderated mediation analyses (Mooney & Duval, 1993). Model 73 of the PROCESS macro for SPSS version 25.0 was used to test for moderated mediation effects (Hates, 2013).

5.4. Results

6.4.1. Missing data

The Little's Missing Completely at Random test (Little, 1988) showed that data were missing completely at random ($\chi 2$=1749.01, df=5001, p=1.00). The expectation-maximisation approach was adopted to impute missing data (Dempster, Lairs, & Rubin, 1977).

6.4.2. Participants

Of the 100 participants recruited into the baseline phase of the study, 99 completed all baseline assessments and 89 completed all follow-up assessment at three months (see Figure 6.1 for

participant flow diagram). The main analyses included 89 participants who had completed baseline and follow-up assessments.
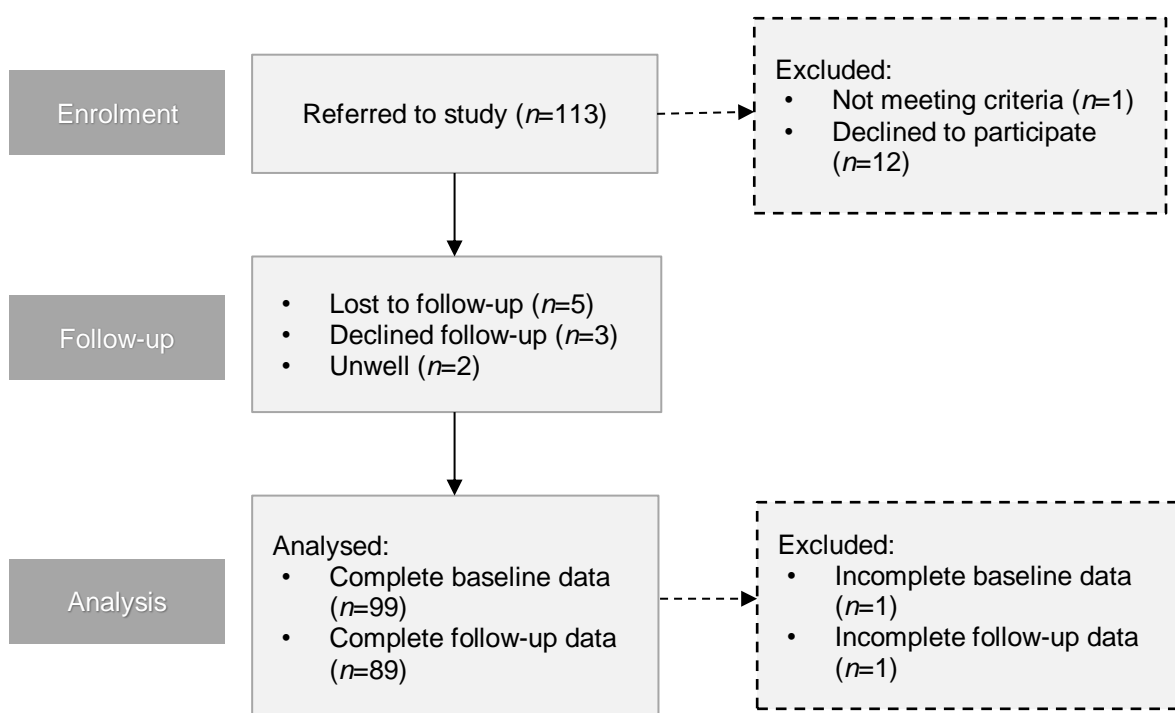
Figure 6.1. Participant flow diagram.

Of the total baseline sample (*n*=100), 80 participants identified as men and 20 identified as women. At three-month follow-up (*n*=90), 75 participants identified as men and 15 identified as women (see Table 6.1 for demographic characteristics of the sample). In relation to suicidal experiences, 21 participants reported one lifetime suicide attempt and 56 reported two or more lifetime suicide attempts at baseline (see Table 6.1 for demographic characteristics of the sample).

The *t*-tests revealed that at follow-up, participants had significantly lower suicidal thoughts and behaviours scores (BSS; *t*(88)=2.17; *p*=.04), Entrapment scores (*t*(88)=.2.30; *p*=.02), and delusions (PANSS item P1; *t*(89)=2.30; *p*=.02) and hallucinations scores (PANSS item P3; *t*(89)=2.51; *p*=.01), compared to baseline (see Table 6.2).

6.4.3. Correlation coefficients

Spearman's rho and Pearson's correlation coefficients between the study variables, namely, defeat, entrapment, hopelessness, suicidal thoughts and behaviours, resilience, hallucinations and delusions severity, distress associated with hallucinations and delusions, and depression are presented in Table 6.3.

Table 6.1. *Demographic characteristics for the baseline and follow-up sample.*

Characteristic	Baseline mean (*SD*); *n* (*n*=100)	Follow-up mean (*SD*); *n* (*n*=90)	Range
Age (yrs)	41.07 (13.06); 100	41.30 (13.35); 89	19-75
Gender (identified as female)	80 (20); 100	75 (15); 90	
Ethnicity			
– White British	73; 100	67; 89	
– Black British	9; 100	8; 89	
– Mixed race	3; 100	3; 89	
– South Asian	6; 100	5; 89	
– North African	1; 100	1; 89	
– White other	8; 100	5; 89	
Occupation			
– Unemployed	81; 100	73; 90	
– Employed	4; 100	3; 90	
– Student	4; 100	3; 90	
– Volunteer	3; 100	4; 90	
– Retired	8; 100	7; 90	
Education			
– Primary education	13; 100	9; 89	
– Secondary education	59; 100	55; 89	
– Higher education	21; 100	19; 89	
– Unknown	7; 100	6; 89	
Relationship status			
– Single	79; 100	68; 89	
– Married	8; 100	8; 89	
– In a relationship	7; 100	9; 89	
– Divorced	5; 100	4; 89	
– Unknown	1; 100	0; 89	
Living arrangements			
– Outpatient	58; 100	53; 90	
– Supported housing	11; 100	13; 90	
– Inpatient	31; 100	24; 90	
Case note diagnosis			
– Schizophrenia	59; 100	52; 90	
– Schizoaffective disorder	16; 100	15; 90	
– Psychosis NOS	23; 100	21; 90	
– Delusional disorder	2; 100	2; 90	
Antipsychotic medication			
– Yes	91; 100	81; 89	
– No	9; 100	8; 89	
Duration of contact with mental health services (yrs)	15.55 (11.60); median=14; 91		1-51

Note: Psychosis NOS – Psychosis Not Otherwise Specified.

Table 6.2. *Summary scores for baseline and follow-up study variables.*

Outcomes	Baseline mean (*SD*); median; *n*	Follow-up mean (*SD*); median; *n*	Baseline range	Follow-up range	Baseline vs follow-up scores *t* (*p*-value)
BSS total	8.63 (8.79); 4; 99	7.24 (8.03); 4; 89	0-36	0-33	**2.17 (.04)**
BHS total	9.00 (6.03); 9;100	8.43 (6.15); 7; 90	0-20	0-20	1.14 (.29)
Defeat total	32.14 (15.51); 31; 99	32.25 (14.40); 32; 89	0-64	0-61	-.19 (.84)
Entrapment total	29.92 (17.58); 31; 99	26.64 (16.16); 28; 89	0-73	0-64	**2.30 (.02)**
PANSS delusions (item P1)	3.81 (1.57); 4.00; 100	3.51 (1.68); 3.50; 90	1-6	1-6	**2.30 (.02)**
PANSS hallucinations (item P3)	3.43 (1.77); 4.00; 100	3.18 (1.80); 4.00; 90	1-6	1-6	**2.51 (.01)**
PSYRATS delusions distress (items 4, 5)	3.43 (2.80); 2.50; 90	3.24 (2.91); 4.00; 90	0-8	0-8	.50 (.62)
PSYRATS hallucinations distress (items 8, 9)	2.85 (2.92). 2.50; 90	2.70 (3.07); 2.50; 90	0-8	0-8	.00 (1.00)
RAS total	42.78 (8.37); 42; 99	41.47 (9.04); 43; 89	23-60	17-60	.68 (.51)
RAS emotion coping	12.75 (3.92); 13; 99	12.65 (3.78); 13; 89	4-20	4-20	.28 (.78)
RAS situation coping	13.42 (3.83); 14; 99	13.51 (3.75); 14; 89	5-20	5-20	-.07 (.95)
RAS social support	15.61 (3.35); 16; 99	15.31 (4.06); 16; 89	4-20	4-20	1.36 (.18)
CDS total	7.69 (5.39); 6; 100	8.03 (5.84); 7; 90	0-22	0-24	-.64 (.52)

Note: BSS – Beck Scale for Suicidal Ideation; BHS – Beck Hopelessness Scale; PANSS – Positive and Negative Syndrome Scale; PSYRATS – Psychotic Symptom Rating Scales; RAS – Resilience Appraisals Scale; CDS – Calgary Depression Scale. Bold values – significant results.

Table 6.3. *Pearson and Spearman correlation coefficients for clinical variables.*

	BHS BL	BSS BL	Defeat BL	Entrap BL	CDS BL	RAS soc supp BL	RAS em cop BL	RAS situ cop BL	RAS total BL	PANSS Del BL	PANSS Hal BL	PSYRATS Del Distress BL	PSYRATS Hal Distress BL
BHS BL	1	.600**	.736**	.642**	.641**	-.357**	-.382**	-.579**	-.573**	.224*	.126	.390**	.192
BSS BL	.600**	1	.509**	.483**	.595**	-.278**	-.283**	-.361**	-.402**	.348**	.379**	.447**	.402**
Defeat BL	.736**	.509**	1	.782**	.682**	-.259**	-.485**	-.674**	-.640**	.147	.102	.337**	.209*
Entrap BL	.642**	.483**	.782**	1	.682**	-.229*	-.481**	-.541**	-.537**	.208*	.194	.330**	.254*
CDS BL	.641**	.595**	.682**	.682**	1	-.226	-.467**	-.511**	-.523**	.273**	.306**	.446**	.313**
RAS soc supp BL	-.357**	-.278**	-.259**	-.229*	-.226*	1	.095	.311**	.554**	-.145	-.116	-.098	-.081
RAS em cop BL	-.382**	-.283**	-.485**	-.460**	-.445**	.095	1	.643**	.780**	-.136	-.181	-.236*	-.267**
RAS situ cop BL	-.579**	-.361**	-.674**	-.541**	-.511**	.311*	.687**	1	.880**	-.070	-.077	-.190	-.113
RAS total BL	-.573**	-.402**	-.640**	-.537**	-.523**	.554**	.809**	.880**	1	-.154	-.158	-.239*	-.196
PANSS Del BL	.224*	.348**	.147	.208*	.273**	-.145	-.136	-.070	-.154	1	.622**	.741**	.534**
PANSS Hal BL	.126	.379**	.102	.194	.306**	-.116	-.181	-.077	-.158	.622**	1	.429**	.670**
PSYRATS Del Distress BL	.390**	.447**	.337**	.330**	.446**	-.098	-.236*	-.190	-.239*	.741**	.429**	1	.356**
PSYRATS Hal Distress BL	.192	.402**	.209*	.254*	.313**	-.081	-.267**	-.113	-.196	.534**	.670**	.356**	1
BHS FU	.757**	.583**	.557**	.557**	.665**	-.262*	-.392**	-.453**	-.487**	.401**	.304**	.483**	.365**
BSS FU	.460**	.675**	.390**	.313**	.493**	-.100	-.216*	-.308**	-.280**	.188	.251*	.355**	.381**
Defeat FU	.708**	.470**	.745**	.615**	.655**	-.253*	-.431**	-.616**	-.574**	.225*	.089	.321**	.190
Entrap FU	.571**	.412**	.586**	.676**	.639**	-.222*	-.374**	-.457**	-.461**	.290	.219*	.254*	.269*
CDS FU	.552**	.515**	.521**	.499**	.750**	-.162	-.345**	-.463**	-.430**	.389**	.294**	.489**	.365**
RAS soc supp FU	-.374**	-.271*	-.243*	-.221*	-.209*	.609**	-.040	.251*	.335**	-.214*	-.004	-.282*	.080
RAS em cop FU	-.436**	-.365**	-.316**	-.403**	-.512**	.180	.591**	.484**	.545**	-.133	-.209*	-.197	-.323**
RAS situ cop FU	-.536**	-.349**	-.424**	-.370**	-.497**	.329**	.574**	.650**	.669**	-.155	-.134	-.139	-.253*
RAS total FU	-.531**	-.404**	-.402**	-.411**	-.487**	.488**	.469**	.537**	.645**	-.183	-.109	-.221*	-.178
PANSS Del FU	.142	.331**	.126	.253*	.298**	-.069	-.052	-.079	-.076	.811**	.606**	.653**	.514**
PANSS Hal FU	.115	.359**	.116	.253*	.299**	-.062	-.122	-.049	-.109	.586**	.827**	.370**	.627**
PSYRATS Del Distress FU	.257*	.333**	.240*	.331**	.315**	-.178	-.103	-.165	-.195	.515**	.421**	.536**	.465**

	BHS BL	BSS BL	Defeat BL	Entrap BL	CDS BL	RAS soc supp BL	RAS em cop BL	RAS situ cop BL	RAS total BL	PANSS Del BL	PANSS Hal BL	PSYRATS Del Distress BL	PSYRATS Hal Distress BL
PSYRATS Hal Distress FU	.230*	.388**	.237*	.323**	.340**	-.136	-.177	-.088	-.192	.454**	.688**	.404**	.721**

Table 6.3. *Pearson and Spearman correlation coefficients for clinical variables (continued).*

	BHS FU	BSS FU	Defeat FU	Entrap FU	CDS FU	RAS soc supp FU	RAS em cop FU	RAS situ cop FU	RAS total FU	PANSS Del FU	PANSS Hal FU	PSYRATS Del Distress FU	PSYRATS Hal Distress FU
BHS BL	.757**	.460**	.708**	.571**	.552**	-.374**	-.436**	-.536**	-.531**	.142	.115	.257*	.230*
BSS BL	.583**	.675**	.470**	.412**	.515**	-.271*	-.365**	-.349**	-.404**	.331**	.359**	.333**	.388**
Defeat BL	.557**	.390**	.745**	.586**	.521**	-.243*	-.316**	-.424**	-.402**	.126	.116	.240*	.237*
Entrap BL	.557**	.313**	.615**	.676**	.499**	-.221*	-.403**	-.370**	-.411**	.253*	.253*	.331**	.323**
CDS BL	.665**	.493**	.655**	.639**	.750**	-.209*	-.512**	-.497**	-.487**	.298**	.299**	.315**	.340**
RAS soc supp BL	-.262*	-.100	-.253*	-.222*	-.162	.609**	.180	.329**	.488**	-.069	-.062	-.178	-.136
RAS em cop BL	-.392**	-.216*	-.398**	-.343**	-.345**	-.040	.538**	.515**	.413**	-.052	-.122	-.103	-.177
RAS situ cop BL	-.453**	-.308**	-.616**	-.457**	-.463**	.251*	.484**	.650**	.537**	-.079	-.049	-.165	-.088
RAS total BL	-.487**	-.280**	-.574**	-.461**	-.430**	.335**	.545**	.669**	.645**	-.076	-.109	-.195	-.192
PANSS Del BL	.401**	.188	.225*	.290	.389**	-.214*	-.133	-.155	-.183	.811**	.586**	.515**	.454**
PANSS Hal BL	.304**	.251*	.089	.219*	.294**	-.004	-.209*	-.134	-.109	.606**	.827**	.421**	.688**
PSYRATS Del Distress BL	.483**	.355**	.321**	.254*	.489**	-.282**	-.197	-.139	-.221*	.653**	.370**	536**	.404**
PSYRATS Hal Distress BL	.365**	.381**	.190	.269*	.365**	.080	-.323**	-.253*	-.178	.514**	.627**	.465**	.721**
BHS FU	1	.547**	.755**	.683**	.780**	-.364**	-.534**	-.568**	-.584**	.347**	.315**	.405**	.328**
BSS FU	.547**	1	.508**	.382**	.609**	-.160	-.402**	-.336**	-.376**	.270*	.261*	.321**	.262*
Defeat FU	.755**	.508**	1	.773**	.765**	-.324**	-.511**	-.555**	-.557**	.242*	.150	.381**	.208
Entrap FU	.683**	.382**	.773**	1	.691**	-.338**	-.569**	-.552**	-.593**	.356**	.371**	.462**	.382**
CDS FU	.780**	.609**	.765**	.691**	1	-.223*	-.501**	-.532**	-.495**	.409**	.332**	.461**	.340**
RAS soc supp FU	-.364**	-.160	-.324**	-.338**	-.223*	1	.222*	.330**	.641**	-.247*	-.111	-.368**	-.175
RAS em cop FU	-.534**	-.402**	-.511**	-.569**	-.501**	.222*	1	.806**	.834**	-.172	-.208	-.267*	-.223*
RAS situ cop FU	-.568**	-.336**	-.555**	-.552**	-.532**	.330**	.806**	1	.877**	-.126	-.098	-.239*	-.116
RAS total FU	-.584**	-.376**	-.557**	-.593**	-.495**	.641**	.834**	.877**	1	-.206	-.173	-.353**	-.221*
PANSS Del FU	.347**	.270*	.242*	.356**	.409**	-.247*	-.172	-.126	-.206	1	.683**	.664**	.540**
PANSS Hal FU	.315**	.261*	.150	.371**	.332**	-.111	-.208	-.098	-.173	.683**	1	.525**	.803**

	BHS FU	BSS FU	Defeat FU	Entrap FU	CDS FU	RAS soc supp FU	RAS em cop FU	RAS situ cop FU	RAS total FU	PANSS Del FU	PANSS Hal FU	PSYRATS Del Distress FU	PSYRATS Hal Distress FU
PSYRATS Del Distress FU	*.405***	*.321***	*.381***	*.462***	*.461***	*-.368***	*-.267**	*-.239**	*-.353***	*.664***	*.525***	1	*.606***
PSYRATS Hal Distress FU	*.328***	*.262**	*.208*	*.382***	*.340***	*-.175*	*-.223**	*-.116*	*-.221**	*.540***	*.803***	*.606***	1

Note: BL – Baseline; FU – Follow-up; BHS – Beck Hopelessness Scale; BSS – Beck Scale for Suicidal Ideation; CDS – Calgary Depression Scale; RAS – Resilience Appraisals Scale; RAS soc sup – Resilience Appraisals Scale (social support subscale); RAS em cop – Resilience Appraisals Scale (emotion coping subscale); RAS situ cop – Resilience Appraisals Scale (situation coping subscale); PANSS – Positive and Negative Syndrome Scale; PSYRATS – Psychotic Symptoms Rating Scales; Del – Delusions; Hal – Hallucinations; *Italicised values* – Spearman coefficient for non-normally distributed data; Non-italicised values – Pearson coefficient for normally distributed data; *$P < .05$; **$P < .001$.

6.4.4. Hypothesis 1: The moderating roles of psychosis symptoms and resilience in the relationships between defeat/entrapment, hopelessness and suicidal thoughts and behaviours

The test statistics, levels of significance and confidence intervals of direct and indirect effects for all models are presented in Tables 6.4 to 6.13.

Table 6.4. Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience, Hallucinations and Delusions as moderators).

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Defeat/Entrapment X BL Delusions and Hallucinations	-.00	.00	-.30	.77	-.01	.01
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-.59	.55	-.00	.00
Interaction 3: BL Delusions and Hallucinations X BL Resilience	-.02	.02	-.96	.34	-.06	.02
Interaction 4: BL Defeat/Entrapment X BL Delusions and Hallucinations X BL Resilience	-.00	.00	-.65	.52	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Delusions and Hallucinations	-.00	.01	-.70	.48	-.02	.01
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations	.01	.04	.24	.81	-.07	.09
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	1.34	.18	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.42	.16	-.05	.01
Interaction 5:	-.02	.03	-.70	.49	-.08	.04

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BL Delusions and Hallucinations X BL Resilience					
Interaction 6: BL Defeat/Entrapment X BL Delusions and Hallucinations X BL Resilience	.00	.00	.85	.39	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations X BL Resilience	-.01	.00	-1.49	.14	-.01	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.5. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions and Hallucinations).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Delusions and Hallucinations	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-3.01	-8.17	-.03	-.10	.02
-3.01	.00	-.03	-.09	.04
-3.01	8.17	-.02	-.12	.08
.00	-8.17	-.07	-.13	-.01
.00	00	-.04	-.10	.00
.00	8.17	-.02	-.09	.05
3.01	-8.17	-.11	-.20	-.02
3.01	00	-.06	-.14	.01
3.01	8.17	-.02	-.12	.08
Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-3.01	-8.17	.00	-.02	.03
-3.01	.00	.00	-.02	.01
-3.01	8.17	.00	-.02	.02
.00	-8.17	-.00	-.01	.02
.00	00	.00	-.01	.01
.00	8.17	.00	-.01	.02
3.01	-8.17	-.00	-.03	.04
3.01	00	.00	-.02	.02
3.01	8.17	.01	-.02	.06

Note: BL – Baseline, FU – Follow-up.

The moderated mediation analysis showed that the strongest, positive relationship was observed between defeat/entrapment at baseline and suicidal thoughts and behaviours at follow-up when resilience was at its lowest (see Figure 6.2). The strength of the direct effect was amplified when baseline delusions and hallucinations were of moderate (p=.01) and high (p=.02) severity, whilst resilience was at its lowest. There was a lack of an indirect effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviours via follow-up hopelessness.
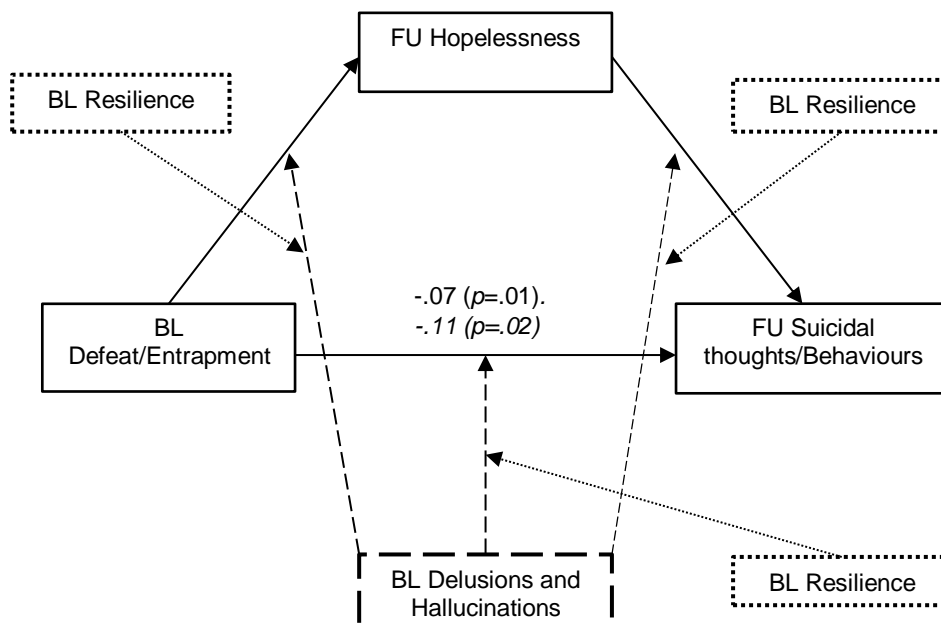
Figure 6.2. Moderated mediation model including baseline delusions and hallucinations, and resilience as moderators of the relationships between baseline defeat/entrapment and follow-up suicidal thoughts and behaviours. *Note: italicised values* – high delusions and hallucinations severity; non-italicised values – moderate delusions and hallucinations severity.

Exploratory analyses revealed that these relationships remained significant when baseline delusions and hallucinations were entered as separate moderators in the model, with one exception. When baseline hallucinations severity was high and resilience was at its lowest, the relationship was not significant (see Tables 6.6, 6.7, 6.8 and 6.9).

Table 6.6 . *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience and Delusions as moderators).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Defeat/Entrapment X BL Delusions	-.00	.01	-.21	.83	-.02	.02
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-.68	.50	-.00	.02
Interaction 3: BL Delusions X BL Resilience	-.04	.04	-.97	.34	-.12	.04
Interaction 4: BL Defeat/Entrapment X BL Delusions X BL Resilience	-.00	.00	-.41	.68	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Delusions	-.00	.01	-.97	.33	-.05	.01
Interaction 2: FU Hopelessness X BL Delusions	.05	.08	.65	.51	-.10	.20
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	1.26	.21	-.00	.01

	Coeff.	SE	t	p-value	LLCI	ULCI
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.52	.13	-.05	.01
Interaction 5: BL Delusions X BL Resilience	-.02	.06	-.29	.77	-.13	.10
Interaction 6: BL Defeat/Entrapment X BL Delusions X BL Resilience	.00	.00	.76	.45	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions X BL Resilience	-.01	.01	-0.98	.32	-.02	.01

Note: BL – Baseline, FU – Follow-up.

Table 6.7. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience and Delusions).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Delusions	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-1.56	-8.17	-.03	-.10	.03
-1.56	.00	-.02	-.09	.05
-1.56	8.17	-.01	-.11	.09
.00	-8.17	-.07	-.12	-.01
.00	00	-.04	-.09	.01
.00	8.17	-.02	-.09	.05
1.56	-8.17	-.11	-.19	-.03
1.56	00	-.07	-.14	.01
1.56	8.17	-.03	-.13	.07
Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-1.56	-8.17	.00	-.02	.02
-1.56	.00	.00	-.01	.01
-1.56	8.17	.00	-.02	.02
.00	-8.17	-.00	-.01	.01
.00	00	.00	-.01	.01
.00	8.17	.00	-.01	.02
1.56	-8.17	-.00	-.02	.03
1.56	00	.00	-.02	.01
1.56	8.17	.00	-.02	.04

Note: BL – Baseline, FU – Follow-up.

Table 6.8. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience and Hallucinations as moderators).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Defeat/Entrapment X BL Hallucinations	-.00	.01	-.31	.76	-.02	.01
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-.65	.51	-.00	.00
Interaction 3:	-.02	.03	-.78	.43	-.08	.03

BL Hallucinations X BL Resilience Interaction 4: BL Defeat/Entrapment X BL Hallucinations X BL Resilience	-.00	.00	-.93	.35	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Hallucinations	-.00	.01	-.05	.96	-.03	.03
Interaction 2: FU Hopelessness X BL Hallucinations	-.01	.07	-.19	.85	-.15	.13
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	.97	.33	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.01	.01	-1.01	.31	-.05	.01
Interaction 5: BL Hallucinations X BL Resilience	-.03	.04	-.75	.46	-.12	.05
Interaction 6: BL Defeat/Entrapment X BL Hallucinations X BL Resilience	.00	.00	.85	.40	-.00	.00
Interaction 7: FU Hopelessness X BL Hallucinations X BL Resilience	-.01	.01	-1.73	.09	-.03	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.9. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience and Hallucinations).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Hallucinations	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-1.75	-8.17	-.05	-.11	.01
-1.75	.00	-.05	-.11	.02
-1.75	8.17	-.04	-.15	.06
.00	-8.17	-.07	-.12	-.00
.00	00	-.05	-.10	.00
.00	8.17	-.03	-.10	.04
1.75	-8.17	-.08	-.18	.02
1.75	00	-.04	-.12	.03
1.75	8.17	-.01	-.11	.09
Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-1.75	-8.17	.00	-.02	.02
-1.75	.00	.00	-.01	.01
-1.75	8.17	-.00	-.02	.02
.00	-8.17	-.00	-.01	.02
.00	00	.00	-.01	.01
.00	8.17	.00	-.01	.02
1.75	-8.17	-.00	-.02	.04
1.75	00	.00	-.01	.02
1.75	8.17	.01	-.01	.06

Note: BL – Baseline, FU – Follow-up.

Furthermore, the model was tested with defeat and entrapment as separate predictors (see Tables 6.10, 6.11, 6.12 and 6.13). The results showed the relationships remained significant, with one exception. Only baseline entrapment did not predict suicidal thoughts and behaviours at follow-up when baseline delusions and hallucinations severity was high, and resilience was low. Baseline defeat predicted suicidal thoughts and behaviours.

Table 6.10. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Defeat as a predictor).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Defeat X BL Delusions and Hallucinations	-.00	.01	-.25	.81	-.02	.02
Interaction 2: BL Defeat X BL Resilience	-.00	.00	-1.17	.25	-.01	.00
Interaction 3: BL Delusions and Hallucinations X BL Resilience	-.02	.02	-.85	.40	-.06	.02
Interaction 4: BL Defeat X BL Delusions and Hallucinations X BL Resilience	-.00	.00	-.57	.57	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat X BL Delusions and Hallucinations	-.01	.02	-.49	.62	-.04	.02
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations	.01	.04	.19	.85	-.07	.09
Interaction 3: BL Defeat X BL Resilience	.01	.00	1.70	.09	-.00	.02
Interaction 4: FU Hopelessness X BL Resilience	-.03	.02	-1.73	.09	-.06	.00
Interaction 5: BL Delusions and Hallucinations X BL Resilience	-.01	.03	-.41	.68	-.08	.05
Interaction 6: BL Defeat X BL Delusions and Hallucinations X BL Resilience	.00	.00	1.20	.23	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations X BL Resilience	-.01	.00	-1.76	.08	-.02	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.11. *Conditional direct and indirect effects of the predictor (Defeat) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions and Hallucinations).*

Conditional direct effect of Defeat on Suicidal thoughts / Behaviours

BL Delusions and Hallucinations	BL Resilience	Effect	LLCI	BLCI
-3.00	-8.17	-.10	-.23	.03
-3.00	.00	-.07	-.20	.06
-3.00	8.17	-.04	-.23	.15
.00	-8.17	-.17	-.31	-.04
.00	00	-.09	-.20	.01
.00	8.17	-.01	-.16	.13
3.00	-8.17	-.25	-.46	-.04
3.00	00	-.12	-.27	.04
3.00	8.17	.01	-.20	.24

Conditional indirect effect of Defeat on Suicidal thoughts / Behaviours through FU Hopelessness

-3.00	-8.17	.00	-.05	.06
-3.00	.00	.00	-.04	.03
-3.00	8.17	.00	-.04	.05
.00	-8.17	-.00	-.03	.03
.00	00	.00	-.02	.02
.00	8.17	.01	-.01	.06
3.00	-8.17	-.00	-.06	.06
3.00	00	-.00	-.04	.03
3.00	8.17	.03	-.03	.14

Note: BL – Baseline, FU – Follow-up.

Table 6.12. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Entrapment as a predictor).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Entrapment X BL Delusions and Hallucinations	-.00	.01	-.24	.81	-.02	.02
Interaction 2: BL Entrapment t X BL Resilience	-.00	.00	-.03	.98	-.00	.00
Interaction 3: BL Entrapment and Hallucinations X BL Resilience	-.02	.02	-1.14	.26	-.06	.01
Interaction 4: BL Entrapment X BL Delusions and Hallucinations X BL Resilience	-.00	.00	-.78	.43	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Entrapment X BL Delusions and Hallucinations	-.01	.01	-.51	.61	-.03	.02
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations	.01	.04	.11	.91	-.08	.09
Interaction 3: BL Entrapment X BL Resilience	.01	.00	1.10	.28	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.02	-1.17	.24	-.04	.01
Interaction 5: BL Delusions and Hallucinations X BL Resilience	-.02	.03	-.68	.50	-.08	.04
Interaction 6: BL Entrapment X BL Delusions and Hallucinations X BL Resilience	.00	.00	.52	.61	-.00	.00

		-.00	.00	-1.21	.23	-.01	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations X BL Resilience							

Note: BL – Baseline, FU – Follow-up.

Table 6.13. *Conditional direct and indirect effects of the predictor (Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions and Hallucinations).*

Conditional direct effect of Entrapment on Suicidal thoughts / Behaviours				
BL Delusions and Hallucinations	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-3.00	-8.17	-.05	-.15	.05
-3.00	.00	-.03	-.14	.07
-3.00	8.17	-.02	-.18	.15
.00	-8.17	-.09	-.17	-.00
.00	00	-.05	-.13	.02
.00	8.17	-.02	-.12	.08
3.00	-8.17	-.12	-.25	-.01
3.00	00	-.07	-.18	.03
3.00	8.17	-.02	-.16	.11
Conditional indirect effect of Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-3.00	-8.17	.00	-.04	.04
-3.00	.00	.00	-.02	.02
-3.00	8.17	-.00	-.03	.02
.00	-8.17	-.00	-.02	.03
.00	00	.00	-.01	.01
.00	8.17	.01	-.01	.02
3.00	-8.17	-.00	-.03	.07
3.00	00	.00	-.02	.03
3.00	8.17	.03	-.02	.06

Note: BL – Baseline, FU – Follow-up.

6.4.5. Hypothesis 2: The moderating roles of psychosis distress and resilience in the relationships between defeat/entrapment, hopelessness and suicidal thoughts and behaviours

The test statistics, levels of significance and confidence intervals of direct and indirect effects for all models are presented in Tables 6.14 to 6.23.

Table 6.14. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience, Delusions Distress and Hallucinations Distress as moderators).*

Outcome variable: FU Hopelessness	**Coeff.**	**SE**	**t**	**p-value**	**LLCI**	**ULCI**

Interaction 1: BL Defeat/Entrapment X BL Delusions and Hallucinations Distress	-.00	.00	.10	.92	-.01	.01
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-1.19	.24	-.00	.00
Interaction 3: BL Delusions and Hallucinations Distress X BL Resilience	.00	.01	-.39	.70	-.02	.03
Interaction 4: BL Defeat/Entrapment X BL Delusions and Hallucinations Distress X BL Resilience	-.00	.00	-.40	.69	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Delusions and Hallucinations Distress	-.00	.01	-.50	.62	-.01	.01
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations Distress	.02	.03	.63	.53	-.04	.08
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	.77	.44	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.52	.13	-.05	.01
Interaction 5: BL Delusions and Hallucinations Distress X BL Resilience	.02	.02	.75	.46	-.03	.06
Interaction 6: BL Defeat/Entrapment X BL Delusions and Hallucinations Distress X BL Resilience	.00	.00	.86	.39	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations Distress X BL Resilience	-.01	.00	-.74	.46	-.01	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.15. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions Distress and Hallucinations Distress).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Delusions and Hallucinations Distress	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-4.63	-8.17	-.03	-.10	.03
-4.63	.00	-.04	-.10	.03
-4.63	8.17	-.04	-.14	.06
.00	-8.17	-.06	-.12	-.10
.00	00	-.05	-.10	.00
.00	8.17	-.03	-.11	.04
4.63	-8.17	-.10	-.19	-.00
4.63	00	-.06	-.15	.02
4.63	8.17	-.03	-.15	.08
Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-4.63	-8.17	-.00	-.02	.02

-4.63	.00	.01	-.02	.02
-4.63	8.17	.00	-.02	.03
.00	-8.17	-.00	-.02	.01
.00	00	.00	-.01	.01
.00	8.17	.01	-.01	.03
4.63	-8.17	-.00	-.04	.04
4.63	00	-.00	-.03	.01
4.63	8.17	.01	-.03	.06

Note: BL – Baseline, FU – Follow-up.

The strength of the direct effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviours was amplified when baseline distress relating to delusions and hallucinations was of medium (p=.02) and high (p=.04) intensity, whilst resilience was at its lowest (see Figure 6.3). Similar to the first hypothesis, there was a lack of an indirect effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviours via follow-up hopelessness.
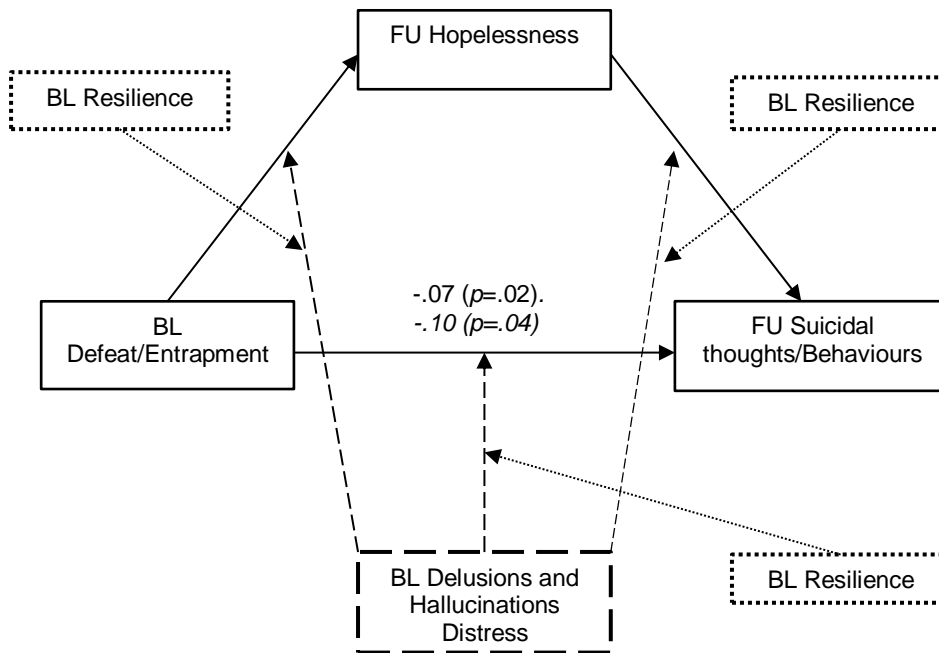
Figure 6.3. Moderated mediation model including baseline delusions and hallucinations distress, and resilience as moderators of the relationships between baseline defeat/entrapment and follow-up suicidal thoughts and behaviours. *Note: italicised values* – high distress; non-italicised values – moderate distress.

Exploratory analyses revealed that these relationships remained significant when baseline delusions distress and hallucinations distress were entered as separate moderators in the model (see Tables 6.16, 6.17, 6.18 and 6.19). The model was also tested with defeat and entrapment as separate predictors.

Table 6.16 . *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience and Delusions Distress as moderators).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Defeat/Entrapment X BL Delusions Distress	.00	.00	.63	.53	-.01	.01
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-.79	.43	-.00	.00
Interaction 3: BL Delusions Distress X BL Resilience	.00	.02	.04	.796	-.04	.04
Interaction 4: BL Defeat/Entrapment X BL Delusions Distress X BL Resilience	.00	.00	.21	.83	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Delusions Distress	-.01	.01	-.71	.48	-.02	.01
Interaction 2: FU Hopelessness X BL Delusions Distress	.06	.04	1.65	.10	-.01	.14
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	.55	.58	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.00	.33	-.05	.02
Interaction 5: BL Delusions Distress X BL Resilience	.02	.03	.74	.46	-.04	.08
Interaction 6: BL Defeat/Entrapment X BL Delusions Distress X BL Resilience	.00	.00	.64	.52	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions Distress X BL Resilience	-.00	.00	-.23	.81	-.01	.01

Note: BL – Baseline, FU – Follow-up.

Table 6.17. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience and Delusions Distress).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Delusions Distress	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-2.80	-8.17	-.03	-.09	.03
-2.80	.00	-.03	-.09	.03
-2.80	8.17	-.03	-.12	.05
.00	-8.17	-.06	-.12	-.01
.00	00	-.05	-.10	.00
.00	8.17	-.04	-.12	.04
2.80	-8.17	-.09	-.18	-.00
2.80	00	-.07	-.15	.02
2.80	8.17	-.04	-.17	.09

Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-2.80	-8.17	.00	-.02	.02
-2.80	.00	.00	-.01	.02
-2.80	8.17	.01	-.00	.05
.00	-8.17	-.00	-.01	.01
.00	00	-.00	-.01	.01
.00	8.17	.00	-.01	.03
2.80	-8.17	.00	-.03	.04
2.80	00	-.00	-.02	.01
2.80	8.17	-.01	-.03	.04

Note: BL – Baseline, FU – Follow-up.

Table 6.18. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Resilience and Hallucinations Distress as moderators).*

Outcome variable: FU Hopelessness	Coeff.	SE	t	p-value	LLCI	ULCI
Interaction 1: BL Defeat/Entrapment X BL Hallucinations Distress	-.00	.00	-.56	.58	-.01	.01
Interaction 2: BL Defeat/Entrapment X BL Resilience	-.00	.00	-1.06	.29	-.00	.00
Interaction 3: BL Hallucinations Distress X BL Resilience	.01	.02	.33	.74	-.03	.05
Interaction 4: BL Defeat/Entrapment X BL Hallucinations Distress X BL Resilience	-.00	.00	-1..08	.28	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Defeat/Entrapment X BL Hallucinations Distress	-.00	.01	-.49	.63	-.02	.01
Interaction 2: FU Hopelessness X BL Hallucinations Distress	-.01	.04	-.28	.78	-.10	.07
Interaction 3: BL Defeat/Entrapment X BL Resilience	.00	.00	.65	.51	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.25	.221	-.05	.01
Interaction 5: BL Hallucinations Distress X BL Resilience	.01	.03	.50	.62	-.00	.00
Interaction 6: BL Defeat/Entrapment X BL Hallucinations Distress X BL Resilience	.00	.00	1.05	.30	-.00	.00
Interaction 7: FU Hopelessness X BL Hallucinations Distress X BL Resilience	-.01	.00	-1..37	.17	-.02	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.19. *Conditional direct and indirect effects of the predictor (Defeat/Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience and Hallucinations Distress).*

Conditional direct effect of Defeat/Entrapment on Suicidal thoughts / Behaviours				
BL Hallucinations Distress	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-2.72	-8.17	-.03	-.09	.04
-2.72	.00	-.03	-.10	.03
-2.72	8.17	-.04	-.14	.06
.00	-8.17	-.06	-.11	-.00
.00	00	-.05	-.10	.00
.00	8.17	-.03	-.10	.03
2.85	-8.17	-.09	-.18	-.00
2.85	00	-.06	-.13	.01
2.85	8.17	-.02	-.11	.06
Conditional indirect effect of Defeat/Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness				
-2.72	-8.17	-.00	-.02	.02
-2.72	.00	-.00	-.01	.01
-2.72	8.17	-.00	-.00	.01
.00	-8.17	-.00	-.02	.01
.00	00	.00	-.01	.01
.00	8.17	.00	-.01	.02
2.85	-8.17	-.00	-.03	.03
2.85	00	.00	-.01	.02
2.85	8.17	.02	-.01	.06

Note: BL – Baseline, FU – Follow-up.

The results followed the same pattern when baseline defeat was entered as a predictor (see Tables 6.20, 6.21, 6.22 and 6.23). In addition, the relationship between baseline defeat and follow-up suicidal thoughts and behaviours was amplified when both baseline distress and resilience were moderate (p=.05). There was also a significant interaction between follow-up hopelessness and baseline resilience (p=.03). That is, baseline resilience weakened the strength of the relationship between hopelessness and suicidal thoughts and behaviours at follow-up when baseline defeat was a predictor. There were no significant interactions when baseline entrapment was entered as a predictor in the model.

Table 6.20. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Defeat as a predictor).*

Outcome variable: FU Hopelessness	**Coeff.**	**SE**	***t***	***p*-value**	**LLCI**	**ULCI**
Interaction 1: BL Defeat X BL Delusions and Hallucinations Distress	-.00	.01	.38	.71	-.01	.02

Interaction 2: BL Defeat X BL Resilience	-.00	.00	-1.84	.07	-.01	.00
Interaction 3: BL Delusions and Hallucinations Distress X BL Resilience	.01	.01	.82	.41	-.02	.04
Interaction 4: BL Defeat X BL Delusions and Hallucinations Distress X BL Resilience	-.00	.00	-.15	.88	-.00	.00

Outcome variable: FU Suicidal thoughts/Behaviours

Interaction 1: BL Defeat X BL Delusions and Hallucinations Distress	-.00	.01	-.02	.98	-.02	.02
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations Distress	.01	.03	.47	.64	-.04	.07
Interaction 3: BL Defeat X BL Resilience	.01	.00	1.43	.16	-.00	.02
Interaction 4: FU Hopelessness X BL Resilience	-.03	.01	-2.15	.03	-.06	-.00
Interaction 5: BL Delusions and Hallucinations Distress X BL Resilience	.03	.02	1.20	.23	-.02	.00
Interaction 6: BL Defeat X BL Delusions and Hallucinations Distress X BL Resilience	.00	.00	1.91	.06	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations Distress X BL Resilience	-.00	.00	-1.52	.13	-.01	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.21. *Conditional direct and indirect effects of the predictor (Defeat) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions Distress and Hallucinations Distress).*

Conditional direct effect of Defeat on Suicidal thoughts / Behaviours

BL Hallucinations Distress	BL Resilience	Effect	LLCI	BLCI
-4.63	-8.17	-.08	-.22	.06
-4.63	.00	-.10	-.25	.04
-4.63	8.17	-.13	-.34	.08
.00	-8.17	-.17	-.30	-.04
.00	00	-.11	-.21	.00
.00	8.17	-.04	-.19	.11
4.63	-8.17	-.26	-.47	-.05
4.63	00	-.11	-.27	.05
4.63	8.17	.05	-.19	.28

Conditional indirect effect of Defeat on Suicidal thoughts / Behaviours through FU Hopelessness

-4.63	-8.17	-.00	-.05	.03
-4.63	.00	.00	-.04	.04
-4.63	8.17	.01	-.07	.08
.00	-8.17	-.00	-.04	.03
.00	00	-.00	-.03	.02
.00	8.17	.01	-.02	.09
4.63	-8.17	.00	-.07	.07

4.63	00	-.00	-.05	.03
4.63	8.17	.03	-.05	.15

Note: BL – Baseline, FU – Follow-up.

Table 6.22. *Coefficients, standard errors, t-tests, p-values and confidence intervals for the mediation, moderation and moderated mediation effects (Entrapment as a predictor).*

Outcome variable: FU Hopelessness	Coeff.	SE	*t*	*p*-value	LLCI	ULCI
Interaction 1: BL Entrapment X BL Delusions and Hallucinations Distress	-.00	.01	-.03	.98	-.01	.01
Interaction 2: BL Entrapment X BL Resilience	-.00	.00	-.47	.64	-.00	.00
Interaction 3: BL Delusions and Hallucinations Distress X BL Resilience	.00	.01	.02	.98	-.02	.02
Interaction 4: BL Entrapment X BL Delusions and Hallucinations Distress X BL Resilience	-.00	.00	-.74	.46	-.00	.00
Outcome variable: FU Suicidal thoughts/Behaviours						
Interaction 1: BL Entrapment X BL Delusions and Hallucinations Distress	-.00	.00	-.49	.62	-.02	.01
Interaction 2: FU Hopelessness X BL Delusions and Hallucinations Distress	.02	.03	.58	.56	-.04	.07
Interaction 3: BL Entrapment X BL Resilience	.00	.00	.59	.55	-.00	.01
Interaction 4: FU Hopelessness X BL Resilience	-.02	.01	-1.24	.22	-.05	-.01
Interaction 5: BL Delusions and Hallucinations Distress X BL Resilience	.01	.02	.70	.48	-.03	.05
Interaction 6: BL Entrapment X BL Delusions and Hallucinations Distress X BL Resilience	.00	.00	.07	.95	-.00	.00
Interaction 7: FU Hopelessness X BL Delusions and Hallucinations Distress X BL Resilience	-.00	.00	-.18	.85	-.01	.00

Note: BL – Baseline, FU – Follow-up.

Table 6.23. *Conditional direct and indirect effects of the predictor (Entrapment) on the outcome variable (Suicidal thoughts/Behaviours) for low, moderate and high levels of the moderators (Resilience, Delusions Distress and Hallucinations Distress).*

Conditional direct effect of Entrapment on Suicidal thoughts / Behaviours				
BL Hallucinations Distress	**BL Resilience**	**Effect**	**LLCI**	**BLCI**
-4.63	-8.17	-.05	-.17	.06
-4.63	.00	-.04	-.13	.06
-4.63	8.17	-.02	-.15	.11

.00	-8.17	-.07	-.16	.01
.00	00	-.06	-.13	.02
.00	8.17	-.04	-.14	.07
4.63	-8.17	-.10	-.22	.03
4.63	00	-.08	-.19	.04
4.63	8.17	-.05	-.22	.11

Conditional indirect effect of Entrapment on Suicidal thoughts / Behaviours through FU Hopelessness

-4.63	-8.17	-.00	-.03	.03
-4.63	.00	.00	-.02	.02
-4.63	8.17	.01	-.02	.05
.00	-8.17	-.00	-.02	.03
.00	00	.00	-.01	.01
.00	8.17	.01	-.01	.03
4.63	-8.17	.00	-.04	.08
4.63	00	-.00	-.03	.02
4.63	8.17	.00	-.04	.06

Note: BL – Baseline, FU – Follow-up.

5.5. Discussion

There are two key, novel findings of this study. First, baseline delusions and hallucinations severity amplified the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviours at follow-up. Second, baseline intensity of distress in relation to delusions and hallucinations amplified the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviours at follow-up. These relationships were significant when the severity of baseline delusions and hallucinations, and distress were moderate and high, and baseline resilience was low. These findings are consistent with studies reporting associations between psychosis and suicidal experiences (Bromet et al., 2017; Harris et al., 2019a; Office for National Statistics, 2019) and between distress and suicidal experiences (Mawson et al., 2010; Ventriglio et al., 2016).

The co-occurrence of hallucinations and delusions (Maher, 2006), and their relationships with suicidal thoughts and behaviours have long been observed (DeVylder & Hilimire, 2015; Freeman et al., 2019; Grunebaum et al., 2001; Montross et al., 2007; Penagaluri, Walker, & El-Mallakh, 2010; Saha et al., 2011; Wong et al., 2013). However, the differential impact of hallucinations and delusions on suicidal thoughts and behaviours is not clear (Grunebaum et al., 2001; Montross et al., 2007). One study found no evidence of a relationship between delusions and history of suicidal thoughts or suicide attempts (Montross et al., 2007). The model tested in this study was significant when delusions and hallucinations were entered as a composite moderator and as separate moderators. These findings have potential clinical implications regarding the overall amplifying effect of delusions and hallucinations severity in their relationships with suicidal experiences.

Most research demonstrating a buffering role of resilience against suicidal experiences has been cross-sectional (Harris et al., 2019b; Johnson et al., 2008; Panagioti et al., 2014). Positive self-appraisals have been implicated as a factor conferring resilience to suicidal experiences (Johnson et al., 2008; 2010b). An important, novel contribution of this study is that, over time, the strength of the relationships between defeat/entrapment, psychosis, distress and suicidal thoughts and behaviours was amplified when resilience (conceptualised as positive self-appraisals) was low. It is plausible that individuals reporting low levels of baseline resilience may be more susceptible to experiencing suicidal thoughts and behaviours as a result of defeat/entrapment, psychosis and distress.

The current findings are consistent with the extant literature reporting a link between defeat, entrapment and suicidal experiences (Johnson et al., 2008; Panagioti et al., 2012; Taylor et al., 2010a; 2010b; Williams, 1997). Our results showed that defeat/entrapment, together, predicted suicidal thoughts and behaviours. However, when defeat and entrapment were entered as separate predictors, the relationships remained significant with delusions and hallucinations severity as a moderator and with delusions and hallucinations distress as a moderator. The only exception was the model including entrapment as a predictor and delusions and hallucinations distress as a moderator, which was not significant. It is plausible that, as a separate construct, entrapment may not constitute a major suicide precursor, specifically in people experiencing psychosis distress. Alternatively, this outcome may be as a result of an underpowered sample, since only about half of the participants scored on the amount and intensity of distress items (i.e., the intensity of distress was low).

Hopelessness was not found to mediate the relationship between baseline defeat/entrapment and suicidal thoughts and behaviours at follow-up. This is contrary to previous studies that have identified hopelessness as a key precursor to suicidal thoughts and behaviours in people experiencing psychosis (Beck et al., 1974; Berardelli et al., 2019; Cassidy, Yang, Kapczinski, & Passos, 2018; Klonsky, Kotov, Bakst, Rabinowitz, & Bromet, 2012). A possible reason for this outcome is that defeat, entrapment and hopelessness are overlapping constructs in the current sample (Tarsafi, Kalantarkousheh, & Lester, 2015). In addition, it has been argued that perceptions of hopelessness could precede or succeed defeat and entrapment (Johnson et al., 2008; Rasmussen et al., 2010; Taylor et al., 2009). Further research is necessary to provide conceptual

clarity on the roles of defeat, entrapment and hopelessness in suicidal experiences in people experiencing non-affective psychosis.

6.5.1. Limitations

There are four limitations to this study which need to be taken into account in the interpretation of the findings. First, a three-month follow-up period was relatively short. Whilst defeat/entrapment predicted suicidal thoughts and behaviours over three months, it is unclear whether defeat/entrapment would predict suicidal experiences in the long term. Second, hopelessness did not mediate the relationship between defeat/entrapment and suicidal thoughts and behaviours. To observe a mediation effect, it is necessary to establish whether changes in the mediator precede changes in the outcome variable (Maric et al., 2012). Since there was no temporal delay in the measurement of these two variables, it was not possible to establish precedence. Third, the study had a comparatively small sample size which would have contributed to the lack of significant findings for some of the relationships tested in the model. Future studies with larger samples would increase confidence in the results relating to the moderating roles of resilience, psychosis and the associated distress in the relationships between defeat/entrapment and suicidal experiences. Fourth, the method of combining variables could have contributed to potential unexplained variance in the models. For example, defeat/entrapment was included in the main model as a composite variable which summed up the scores on the separate Defeat and Entrapment scales. However, the two scales may have had unequal weight and, therefore, contributed differently to the combined total score. This may have had an impact on the accuracy of the results. Nevertheless, this study contributes to the evidence base for psychological mechanisms which amplify or weaken suicidal experiences. The impact of defeat, entrapment, hallucinations and delusions, the associated distress, and resilience present clear targets for psychological interventions aiming to alleviate suicidal thoughts and behaviours in people experiencing non-affective psychosis.

CHAPTER 7

7. General Discussion

7.1. Overview

The empirical studies presented in this thesis (Chapters 3, 4, 5 and 6) are presented in journal format. Therefore, discussions relating to individual studies are provided in the respective chapters. The purpose of this chapter is to summarise the findings, examine the theoretical and clinical implications, and methodological strengths and limitations of the empirical studies. It will also synthesise some of the issues raised in the empirical chapters and discuss these in relation to previous literature. This chapter concludes with directions for research beyond this thesis.

7.1.1. Chapter summary

Prior to the research conducted as part of this thesis, it was known that experiencing non-affective psychosis or having a diagnosis of schizophrenia was associated with increased levels of suicidal thoughts, behaviours and suicide death (Bromet et al., 2017; Hor & Taylor, 2010; Kjelby et al., 2015; Malherbe et al., 2017; Martin et al., 2015; Pompili et al., 2017). However, not everyone at risk of suicide death thinks about, attempts or dies by suicide. Some people with a diagnosis of schizophrenia or non-affective psychosis are resilient to the impact of suicide precursors and risk factors (Bolton et al., 2007; Gooding et al., 2017; Johnson et al., 2010b; 2011; Phillips et al., 2009). Little was known about the precise factors that conferred psychological resilience to suicidal thoughts and behaviours or the mechanisms by which resilience buffered against suicidal thoughts and behaviours, specifically in this population.

The overarching aim of this thesis was to investigate psychological resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. A mixed methods approach was adopted to address this aim, incorporating different methodological designs, including a systematic literature review, two qualitative studies and a longitudinal study (Chapters 3 to 6). The main findings of the empirical studies included in this thesis are presented in Table 7.1.

Table 7.1. *Main findings of the empirical studies presented in Chapters 3 to 6.*

Chapter	Study design	Research aims	Key findings
3.	Systematic literature review ("Resilience to suicidal thoughts and behaviours")	i. To appraise the evidence for psychological factors which confer resilience to suicidal thoughts and behaviours in people with schizophrenia or non-affective psychosis. ii. To categorise these psychological factors into broader psychological constructs which characterise resilience.	Four categories of psychological factors that confer resilience to suicidal thoughts and behaviours were identified, including: i. Perceived social support, ii. Holding religious and spiritual beliefs, iii. Identifying reasons for living, and iv. Perceived positive personal skills and attributes.
4.	Qualitative interview study 1 ("Factors that contribute to psychological resilience to suicidal thoughts and behaviours")	To investigate factors that contribute to psychological resilience to suicidal thoughts and behaviours from the perspectives of people with a diagnosis of schizophrenia/non-affective psychosis.	A model was developed which described psychological resilience as involving ongoing effort, encompassing: i. Understanding experiences (including reconciliation to mental health experiences and seeking reasons to live), ii. Active behaviours (including talking to people and keeping occupied), and iii. Relationship dynamics (including feeling supported by significant others and mental health professionals).
5.	Qualitative interview study 2 ("Investigating the perceived impact of psychosis on suicidal thoughts and behaviours")	To investigate the perceived impact of psychosis on suicidal thoughts and behaviours from the perspectives of individuals with these experiences**.	A practical heuristic of the perceived impact of psychosis on suicidal thoughts and behaviours was developed, comprising three elements: i. Immensely distressing psychosis symptoms, ii. Changes in behaviours and appraisals of self, and iii. Suicidality as a means of escaping from distress. The first two elements led to a vicious cycle whereby suicidality was perceived as the only way to escape the immense distress. Certain types of delusions, such as grandiose delusions, were sometimes perceived to reduce the intensity of suicidal experiences and psychological distress.

6.	Longitudinal study ("The relationship between resilience, psychosis, distress and suicidal thoughts and behaviours")	i. To investigate the impact of defeat/entrapment and hopelessness on suicidal thoughts and behaviours. ii. To investigate the moderating effects of psychosis, distress and psychological resilience in the relationships between defeat/entrapment, hopelessness and suicidal thoughts and behaviours.	• A moderated mediation model incorporating key precursors to suicidal experiences (defeat/entrapment, hopelessness) and psychosis, the associated distress and resilience as moderators was tested. • Psychosis symptoms and distress amplified the impact of defeat/entrapment on suicidal thoughts and behaviours over three months. • Defeat/entrapment predicted the development of suicidal thoughts and behaviours when the severity of psychosis and distress was moderate and high, and resilience was at its lowest.

In order to address the overarching aim, this thesis contributes to the extant empirical knowledge in four ways. First, it presents the findings of a first systematic literature review of psychological factors that confer resilience to suicidal experiences in people with a diagnosis of schizophrenia or non-affective psychosis (Chapter 3). Although there is considerable evidence for increased levels of suicidal thoughts and behaviours in people with a diagnosis of schizophrenia, a review of the literature was important for identifying potential psychological factors which may confer resilience to suicidal experiences. It was important to identify the nature of the relationships between these psychological factors and suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. The review identified two gaps in the current empirical knowledge. First, there was a lack of research investigating individual experiences of psychological resilience and psychosis in relation to suicidal thoughts and behaviours. Second, no studies investigated potential long-term psychological mechanisms underlying resilience to suicidal experiences in this population. The findings of this literature review, coupled with available theoretical evidence, helped develop a rationale for the subsequent empirical studies described in this thesis (Chapters 4, 5 and 6).

Second, this thesis reports the findings of the first qualitative study examining what factors contributed to psychological resilience to suicidal experiences, from the perspective of people with a diagnosis of schizophrenia or non-affective psychosis (see Chapter 4). The participants in the study highlighted factors, some of which were identified in the systematic literature review

described in Chapter 3, that were important in the development and maintenance of resilience. Importantly, the participants in the study described resilience as a dynamic process that developed over time through the experiences of psychosis and interrelated suicidal thoughts and behaviours. This is of particular relevance for clinical interventions that aim to nurture resilience and reduce the levels of suicide-related experiences reported in this population. This study adds to the understanding of psychological resilience as captured by five resilience models, namely, the unidimensional ("two poles"), two-dimensional (buffering), recovery, maintenance, and psychological immunity models (Davydov et al., 2010; Gooding & Harris, 2020; Johnson et al., 2010a; Johnson & Wood, 2017; Goubert & Trompetter, 2017; Tugade & Fredrickson, 2004). Specifically, this study provided evidence for a multi-componental, dynamic approach to understanding resilience to suicide integrating the two-dimensional (buffering), recovery and maintenance models (Harris et al., 2019a), and challenged the conceptualisation of resilience as a trait, as a unidimensional construct or as psychological immunity. The current findings have the potential to inform the development of resilience frameworks from a multi-componental conceptual perspective (Johnston et al., 2015; Kalisch et al., 2015; Rutten et al., 2013).

Third, following the findings of the empirical study described in Chapter 4, a second qualitative study was conducted investigating the impact of psychosis on suicidal thoughts and behaviours (see Chapter 5). The results add invaluable insight into the psychological distress associated with psychosis and suicidal thoughts and behaviours that people with these experiences endure. These results coincide with some of the findings of a recent meta-synthesis which identified a sense of self and identity, personal relationships (e.g., withdrawal) and stigma as sources of psychological distress in people experiencing first-episode psychosis (Griffiths et al., 2019). The current qualitative study was novel because, for the first time, it reported people's appraisals of the potential protective effect of specific psychosis symptoms (e.g., grandiose delusions) against suicidal thoughts and behaviours. Therefore, the findings of this study can inform prevention interventions about what particular aspects of psychosis may be important for individuals, in order to reduce the levels of suicidal experiences and potentially nurture psychological resilience.

Fourth, and finally, this thesis presents the findings of the first three-month longitudinal study investigating the roles of psychosis, the associated distress and psychological resilience in the relationships between key precursors of suicide (i.e., defeat/entrapment and hopelessness) and suicidal thoughts and behaviours (see Chapter 6). Previous theoretical evidence shows that

defeat/entrapment and hopelessness lead to suicidal thoughts and behaviours (Johnson et al., 2008; Klonsky & May, 2015; O'Connor, 2011; O'Connor & Kirtley, 2018; Panagioti et al., 2015; Taylor et al., 2011a; Williams, 1997). Therefore, it was hypothesised that psychosis symptoms and the associated distress would amplify, whereas psychological resilience would attenuate the strength of the relationships between defeat/entrapment, hopelessness and suicidal thoughts and behaviours. This study builds on knowledge obtained from the results of the previous empirical studies described in this thesis (Chapters 3, 4 and 5) which identified psychological resilience, psychosis symptoms and the associated distress as important modifiable factors that can potentially moderate the relationships between suicide precursors and suicidal experiences. This is particularly relevant to contemporary transdiagnostic models of suicide which do not explicitly account for the relationships between psychosis, distress, resilience and suicidal thoughts and behaviours (Johnson et al., 2008; Joiner, 2005; O'Connor, 2011; O'Connor & Kirtley, 2018; Williams, 1997).

Overall, the empirical chapters of this thesis advanced the theoretical knowledge of the impact of psychosis, the associated distress and psychological resilience on suicidal experiences, specifically in individuals with a diagnosis of schizophrenia diagnosis or non-affective psychosis. This thesis provided evidence for particular psychological factors that confer resilience to suicidal thoughts and behaviours and investigated the perceived impact of psychosis symptoms and the associated distress on suicidal experiences. The theoretical and clinical implications relating to these findings are discussed in the following sections.

7.2. Theoretical Implications

This section discusses the theoretical implications for suicide and resilience research. In particular, the conceptual issues around the resilience construct, the mechanisms underpinning resilience to suicidal thoughts and behaviours, and the issues pertaining to the inclusion of psychosis-specific and transdiagnostic resilience factors in contemporary models of pathways to suicidal experiences (Johnson et al., 2008; Joiner, 2005; O'Connor, 2011; O'Connor & Kirtley, 2018; Williams, 1997) are considered.

7.2.1. The conceptualisation of psychological resilience to suicidal experiences

In order to understand psychological resilience as a concept, it is important to make a clear distinction between other relevant concepts, such as suicide risk factors and protective factors that

might confer resilience to suicidal experiences (Luthar, 2006a; Luthar, Sawyer, & Brown, 2006b). Risk factors are distinctive features of an individual, a family or a community, which occur prior to a negative outcome of interest and are associated with an increased likelihood of negative outcomes (O'Connell, Boat, & Warner, 2009; Kraemer et al., 1997). Protective factors, on the other hand, are generally associated with a lower likelihood of negative outcomes and have been proposed to promote and build psychological resilience (Berman & Silverman, 2019; Luthar et al., 2006b; Matel-Anderson, Bekhet, & Garnier-Villarreal, 2019; O'Connell et al., 2009; Rutter, 1985).

Resilience research has been criticised for its lack of a precise operational definition (Neenan, 2018). Nevertheless, resilience research could provide answers to the reasons why certain people are negatively impacted by life stressors and adversities, whereas others appear unaffected or even gain strength as a result of them. It has been argued that resilience is not a single construct but one that is variously defined and evolves continuously, depending on the individual contexts (Gordon & Song, 1994; Luthar & Zelazo, 2003; Radke-Yarrow & Brown, 1993; Werner & Smith 1992). A large number of studies have investigated resilience as a negative correlate of suicidal thoughts and behaviours (see Harris et al., 2019b; Johnson et al., 2011 for literature reviews). This approach has led to redundancy in the understanding of the concept, such that people who are resilient are, therefore, not experiencing suicidal thoughts and behaviours, or people who are not experiencing suicidal thoughts and behaviours are resilient. Research has moved on from this simplistic, unidimensional model of resilience to more complex, multidimensional models (e.g., a combination of buffering, recovery, maintenance models) that need to be developed at individual, community and societal levels (see Gooding & Harris, 2020; Harris et al., 2019a).

Despite over three decades of resilience research, the psychological mechanisms underpinning the concept remain poorly understood (Berman & Silverman, 2019). However, the qualitative study presented in Chapter 4 of this thesis made important conceptual contributions to suicide resilience research. Specifically, psychological resilience was described as a process which required effort to develop and maintain over time, through the experiences of psychosis and interrelated suicidal thoughts and behaviours. Hence, resilience does not appear to be a static trait. Moreover, the qualitative study described in Chapter 5 identified specific psychosis experiences (e.g., grandiose delusions) that were associated with reduced intensity of suicidal thoughts, behaviours and psychological distress. The potential perceived protective effect of psychosis experiences warrants further investigation. Just as transdiagnostic and mental health problem-specific factors have been

identified in contemporary theoretical models of suicide, it is also important to delineate such factors in resilience models. The moderated mediation model tested in the study described in Chapter 6 is an example of a multi-componential model, incorporating psychosis-specific (e.g., delusions, hallucinations and the associated distress) and transdiagnostic moderating factors (e.g., perceived social support). Taken together, these findings correspond with the second wave of resilience inquiry which conceptualises resilience as a dynamic process and aims to examine mechanisms that underpin protective factors (Richardson, 2002; see Chapter 1). This second-wave conceptualisation of resilience was further developed by mapping participants' experiences and descriptions of resilience onto a multi-componential framework, including two-dimensional (buffering), recovery and maintenance resilience models (see Chapter 4; Harris et al., 2019a) and examining psychosis-specific and transdiagnostic mechanisms (see Chapters 5 and 6; Harris et al., 2020).

The literature review and qualitative study described in Chapters 3 and 4, respectively, identified a range of psychological factors that could confer resilience to suicidal thoughts and behaviours in people with non-affective psychosis which are not all incorporated into the Resilience Appraisals Scale (RAS) used to measure positive self-appraisals in the longitudinal study described in Chapter 6. For example, the potential moderating effects of holding religious and spiritual beliefs (Chapter 3), identifying reasons for living (Chapters 3 and 4), understanding experiences and active behaviours (e.g., keeping occupied; Chapter 4) were not tested in the moderated mediation model. On the other hand, factors such as perceived social support (Chapters 3, 4 and 6) and perceived personal skills and attributes (Chapter 3 and 6) converged across the studies of this thesis. Future research using moderation analyses could examine the potential buffering effects of different psychological factors, identify which factors are most robust, and integrate these with theoretical models of suicide and resilience, in order to create a comprehensive, multi-componential framework of resilience to suicidal experiences.

7.2.2. The role of psychological resilience as a moderator of suicidal experiences in people with non-affective psychosis

Resilience research has predominantly investigated inverse correlations between resilience and suicidal thoughts and behaviours (Johnson et al., 2011b; Harris et al., 2019b; Perkins & Jones, 2004; Ristkari et al., 2005). Furthermore, a limited number of studies have investigated psychological factors that may confer resilience to suicidal experiences, specifically in people with

a diagnosis of schizophrenia or non-affective psychosis (see Harris et al., 2019b for a review of the literature). There are no longitudinal studies examining theoretically driven resilience mechanisms that buffer against the impact of suicidal experiences in that population (Harris et al., 2019b; Johnson, 2016; Johnson et al., 2008; 2011; Johnson & Wood, 2017).

According to the Schematic Appraisals Model of Suicide (SAMS), there are two important aspects that should be considered by resilience research. First, resilience should be examined as a moderator of the relationship between suicide-related precursors and suicidal thoughts and behaviours (Johnson, 2016; Johnson et al., 2008; 2010a; 2011; Johnson & Wood, 2017). Second, suicide risk factors and resilience should be viewed as separate dimensions (Johnson et al., 2008; 2010a; 2011; Johnson & Wood, 2017). Those two aspects informed the hypotheses of the empirical longitudinal study described in Chapter 6 of this thesis.

The SAMS implicates positive self-appraisals of social support, emotion coping and problem-solving abilities as factors which confer resilience to suicidal experiences (Johnson et al., 2008). The study described in Chapter 6 tested a multi-componential model integrating factors pertinent to transdiagnostic and symptom-specific suicide (e.g., defeat/ entrapment, suicidal thoughts and behaviours), psychosis (e.g., hallucinations, delusions, psychosis distress) and resilience (e.g., perceived social support) mechanisms. This multi-componential model was informed by theoretical evidence and findings from the studies described in Chapters 3, 4, and 5. The positive self-appraisals implicated as factors conferring resilience in the SAMS are not necessarily protective of suicidal thoughts and behaviours exclusively in individuals experiencing psychosis. The same protective mechanisms may operate in individuals with different mental health problems, such as PTSD or in non-clinical samples (Johnson et al., 2010a; 2010b; Panagioti et al., 2014). This shows that positive-self appraisals may be a transdiagnostic protective factor which can buffer against suicidal experiences across different mental health problems. For example, according to previous research, perceived social support may be a transdiagnostic source of psychological resilience that warrants incorporation into multi-componential models of resilience (Bell et al., 2017; Kleiman & Lui, 2013; Kleiman, Riskind, & Schaefer, 2014; Owen et al., 2015; Panagioti et al., 2014). The findings of the studies presented in Chapters 3, 4 and 5 highlighted potential psychosis-specific aspects of resilience relating to understanding psychosis and suicidal experiences, as well as appraisals of personal attributes, which may be affected by specific experiences, such as grandiose delusions. This proposal is speculative, as the inverse relationship between specific

appraisals of personal abilities and suicidal experiences has not been investigated in detail. It is possible that certain psychological factors, such as perceived social support, are part of a general transdiagnostic mechanism, applicable to different mental health problems, but other factors, such as psychosis symptoms, are moderated by aspects pertinent to the particular mental health problem (Bolton et al., 2007; Harris et al., 2019a; 2019b).

In addition to identifying transdiagnostic factors, it is also important to consider symptom-specific factors that can buffer against suicidal experiences (Bolton et al., 2007). However, the potential protective effect of specific psychosis symptoms (e.g., delusions, hallucinations) has not been investigated or incorporated in the contemporary models of suicide. Except for the SAMS (Johnson et al., 2008), contemporary models of suicidal experiences do not explicitly address psychological resilience in relation to psychosis. It is important for future resilience work to examine and attempt to integrate psychological resilience mechanisms specific to suicidal experiences, both within non-affective psychosis populations and other mental health problems, in order to understand transdiagnostic and symptom-specific resilience to suicide mechanisms.

7.2.3. The impact of psychosis symptoms and the associated distress on suicidal experiences

Two studies in this thesis investigated the impact of psychosis symptoms and the associated distress on suicidal thoughts and behaviours (Chapters 5 and 6). The results of these studies showed that experiences of psychosis symptoms and distress due to psychosis can lead to suicidal thoughts and behaviours (Chapter 5), and also strengthened the relationships between defeat/entrapment and suicidal thoughts and behaviours over three months (Chapter 6). Associations between experiencing psychosis, distress and suicidal thoughts and behaviours have been reported in numerous studies (Bromet et al., 2017; Hor & Taylor, 2010; Hutton, Di Rienzo, Turkington, Spencer, & Taylor, 2019; Kjelby et al., 2015; Martin et al., 2015; Mawson et al., 2010; Taylor et al., 2010a; Yates et al., 2019; Zalpuri & Rothschild, 2016).

Conversely, participants in the empirical study described in Chapter 5 reported that specific psychosis symptoms, such as visual hallucinations and grandiose delusions, could be perceived as protective of suicidal experiences. Only one contemporary model of suicide, namely, the SAMS has tested the mechanisms underlying psychological resilience in relation to suicidal thoughts and behaviours, specifically in a sample of people experiencing psychosis (Johnson et al., 2008;

2010a). Furthermore, the model suggests that positive self-appraisals counter the impact of negative situational appraisals such as appraisals of experiences of clinical symptoms. Therefore, it can be posited that certain psychosis symptoms represent negative situational appraisals, whereas others may represent positive situational appraisals. As such, the results of this thesis may add to the SAMS, whereby, depending on the individual experience, negative appraisals of psychosis, coupled with distress, amplify the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviours. On the other hand, positive appraisals of psychosis symptoms (e.g., grandiose delusions) may reduce the impact of psychosis distress and weaken the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviours (see Figure 7.1; items in bold and the dashed arrows illustrate proposed additional factors and pathways).
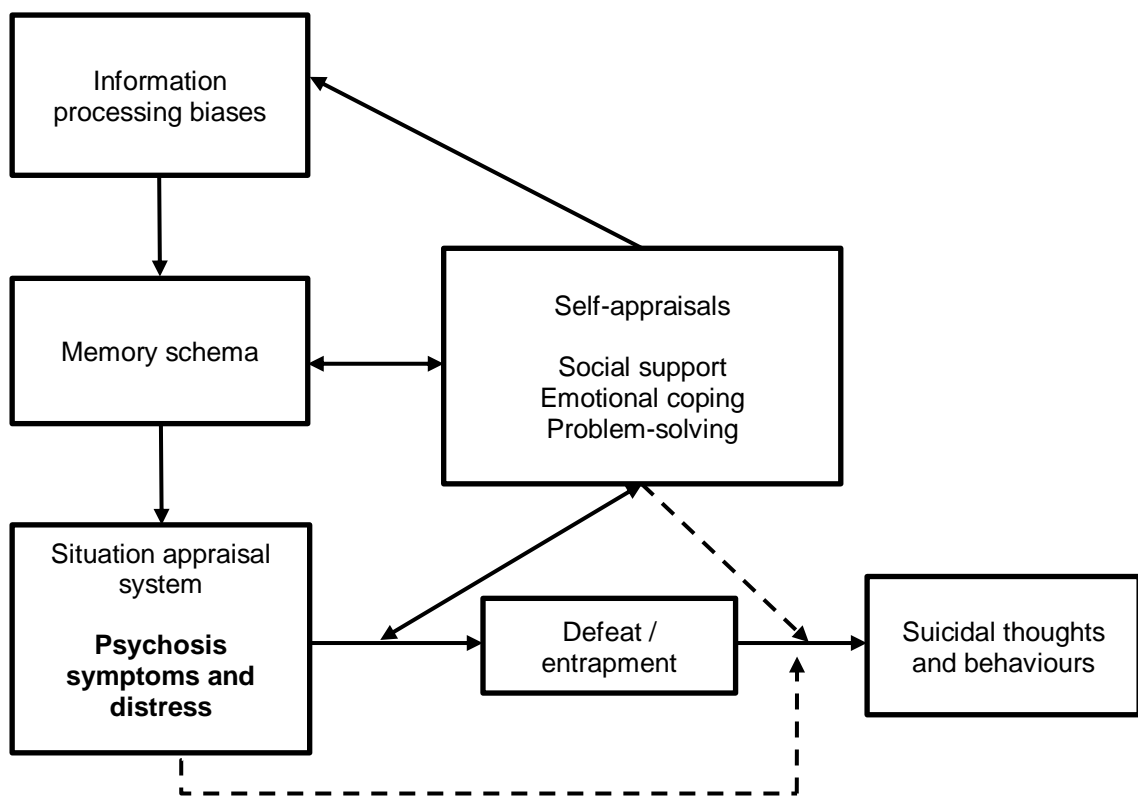
Figure 7.1. The Schematic Appraisals Model of Suicide (Johnson et al., 2008), adapted to include a psychosis symptoms pathway.

It should be noted that the SAMS does not propose a theoretical framework for examining the impact of specific psychosis experiences (e.g., delusions, hallucinations) in the relationships between psychological resilience and suicidal thoughts and behaviours. For example, previous research has shown that psychosis amplifies suicidal experiences but certain psychosis experiences (e.g., grandiose delusions) can be perceived as protective of suicidal thoughts and

behaviours (Bromet et al., 2017; Harris et al., 2019a; Hawton et al., 2005; Hor & Taylor, 2010; Ventriglio et al., 2016). Therefore, the buffering effect of specific psychosis experiences against suicidal thoughts and behaviours warrants further investigation.

According to the findings of the empirical study described in Chapter 5 of this thesis, experiencing psychosis was associated with psychological distress which led to suicidal thoughts and behaviours. None of the contemporary models of suicide described in the Introduction (Chapter 1) have specifically incorporated the role of appraisals of psychosis symptoms and the interrelated psychological distress in the development of suicidal experiences. Overall, the topic of distress experienced by people with psychosis has received less research attention (Andrade et al., 2016; Griffiths et al., 2019; Vracotas, Schmitz, Joober, & Malla, 2007) That said, one study adapted a model of psychosis-related distress (Hutton, Morrison, Wardle, & Wells, 2014) to explain suicidal experiences in people with a diagnosis of schizophrenia (Hutton et al., 2019). The model posits that increased severity of negative content of psychosis symptoms activates cognitive appraisals of defeat and hopelessness which, in turn, lead to suicidal ideation (Taylor et al., 2010a). This relationship is amplified by negative beliefs about uncontrollability and danger of worry. Experiencing suicidal ideation is a response to perceptions of defeat and entrapment in relation to psychosis, coupled with worry about the uncontrollability of the situation and perceived danger of worry (Hutton et al., 2019). However, potential resilience mechanisms that may weaken the strength of these relationships are not described in the model. In order to address the multi-faceted relationship between psychosis, the associated distress, resilience and suicidal experiences, models of suicide should also incorporate symptom-specific factors that may amplify or attenuate suicidal thoughts and behaviours (see figure 7.1).

7.3. Clinical Implications

This section will discuss the implications of the findings from the empirical studies described in this thesis in relation to the assessment and formulation of experiences and psychological interventions aiming to nurture resilience to suicidal thoughts and behaviours in individuals with a diagnosis of schizophrenia or non-affective psychosis. The results of the studies in this thesis identified: i. important protective factors which may confer psychological resilience to suicidal thoughts and behaviours (Chapters 3 and 4), ii. psychological resilience as potentially reducing suicidal thoughts and behaviours (Chapters 3 and 4) and iii. psychosis experiences and associated distress as precursors to suicidal thoughts and behaviours (Chapters 5 and 6). Taken together, these results

indicate that aiming to reduce the deleterious impact of psychosis and the associated distress, together with nurturing psychological resilience, may help reduce suicidal thoughts and behaviours experienced by people with a diagnosis of schizophrenia or non-affective psychosis.

7.3.1. Implications for suicide risk assessment procedures

A main aspect of suicide research is the assessment and prediction of suicide-related thoughts, behaviours and suicide deaths (Glenn & Nock, 2014). Assessing and managing suicide risk in individuals is considered an essential part of clinical practice (Oquendo & Bernanke 2017). However, there are no universally accepted risk assessment guidelines (Oquendo & Bernanke 2017). Despite extant research on this topic, predicting suicide behaviours and deaths with high specificity and sensitivity is challenging (Large, 2018; Large, Galletly, Myles, Ryan, & Myles, 2017; Large, Sharma, Cannon, Ryan, & Neilssen, 2011; Mulder, 2011; Oquendo & Bernanke 2017). Therefore, the value of risk assessment procedures in predicting suicide-related outcomes has been questioned (Large, 2018; Large et al., 2011; Mulder, 2011; Oquendo & Bernanke 2017).

Across the empirical studies described in this thesis (Chapters 4, 5 and 6), adverse reactions were monitored using a visual analogue scale to assess changes in mood before and after taking part in the studies. In addition, all participants consenting to this were contacted via telephone to check their wellbeing around 24 hours after taking part in the studies (see Chapter 2 for a detailed description of these procedures). These were used as indicators of the potential impact of the study on participant's mood (Biddle et al., 2013). If a participant reported lower mood at the end of the assessment, KH examined what may have contributed to this and how any potentially negative impact of the assessment could be mitigated, with participants' input. Importantly, previous research has shown that, from participants' perspective, the benefits of participating in suicide-related research (e.g., increased altruism and understanding of self) outweigh the potential negative impact (e.g., temporary dip in mood; Littlewood et al., 2019). Previous studies have shown that talking about suicidal thoughts and behaviours does not exacerbate distress or suicidal thoughts and behaviours in research participants (Blades et al., 2018; Littlewood et al., 2019).

Structured assessments integrating both risk and protective factors have been suggested to produce consistent risk formulations (Oquendo & Bernanke 2017). However, a presence of protective factors does not necessarily reduce or eliminate the risk of suicide-related experiences or suicide death or equate to a will to live (Berman & Silverman, 2019). For example, an individual

may perceive themselves as resilient to the impact of suicide precursors (e.g., hopelessness, defeat, psychosis experiences) and, hence, score highly on a resilience measure, but be overwhelmed by various other suicide precursors (e.g., getting divorced, being unemployed) that increase the likelihood of attempting or dying by suicide, irrespective of their self-reported resilience.

Both suicide risk and resilience are dynamic concepts that change over long and short periods of time (Ayed et al., 2018; Harris et al., 2019a; McLean et al., 2008; Sumskis et al., 2016; Welton, 2007). For instance, suicide precursors, such as high levels of hopelessness, can be considered a proxy measure of other suicide precursors, such as suicidal ideation. Similarly, protective factors, such as perceptions of reasons to live can be considered proxy measures of resilience for some individuals. A recent study assessing the moderating effect of protective factors on the relationships between non-suicidal self-injury frequency and past year suicide attempts found that non-suicidal self-injury predicted suicide attempts (Muehlenkamp & Brausch, 2019). Furthermore, life satisfaction and subjective happiness were associated with decreased likelihood of suicide attempts. However, resilience, life satisfaction, and subjective happiness did not moderate the relationship between the frequency of non-suicidal self-injury and suicide attempts (Muehlenkamp & Brausch, 2019). It was proposed that psychological resilience may be effective as part of an early prevention for suicide-related behaviours but less effective for individuals who have been engaging in such behaviours for some time (Liu, Fairweather-Schmidt, Burns, Roberts, & Anstey, 2016). This shows that suicide risk factors and resilience can vary significantly within individuals, as certain protective factors may no longer be perceived as having a protective effect, depending on an individual's ever-changing circumstances (Berman & Silverman, 2019). This is a particular issue for suicide risk assessments which are often conducted in short-term, acute settings.

A thorough consideration of both resilience and risk factors has been advocated in the assessment and management of suicide-related experiences (Berman & Silverman, 2019). Also, psychosis experiences need to be considered alongside other suicide risk factors for this population. Despite the empirical evidence on psychosis, suicide risk and resilience, predicting suicide-related outcomes accurately remains a challenge. Overall, provision of empathy and patience within a safe environment is essential in order to effectively formulate an individual's risk of suicidal behaviours and suicide death (Berman & Silverman, 2019). In addition, clear understanding of psychological

resilience and its relationship with suicidal thoughts and behaviours represents a valuable aspect of the effective management of suicidal experiences in psychosis populations.

Investigating interaction effects between psychological resilience, psychosis, distress and suicide risk could predict suicide deaths more accurately than if these factors were considered in isolation. For instance, in clinical practice, it may be beneficial to not only examine individual suicide risk factors but also explore aspects of psychological resilience and psychosis. If perceptions of resilience are low, coupled with high levels of suicide risk, psychosis and the associated distress, this may be an indicator of experiences of suicidal thoughts, behaviours and, potentially, suicide death.

7.3.2. Implications for psychological interventions

The results of the systematic literature review (Chapter 3) and first qualitative study (Chapter 4) showed that perceptions of positive personal skills and attributes, social support, reasons to live, holding religious and spiritual beliefs and understanding of mental health experiences were important sources of resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or non-affective psychosis. Furthermore, findings from the longitudinal study (Chapter 6) suggest that low psychological resilience and moderate and high levels of psychosis and associated distress can alter the impact of suicide precursors on suicidal thoughts and behaviours. The notion of resilience as a concept that can be developed in individuals (Harris et al., 2019a) and the ability of resilience to buffer against suicidal experiences suggest that the development of resilience building interventions could be an important treatment target.

In order to reduce the rate of suicide-related experiences and suicide deaths, it may be useful to delineate theoretically informed psychological interventions that are aimed at nurturing psychological resilience to suicidal experiences. There is a variety of techniques that may help reduce the impact of psychosis, the related distress and suicidal experiences on individuals, and potentially nurture resilience (Berman & Silverman, 2019). For example, cognitive behavioural therapy (CBT) has been shown to effectively reduce the symptoms of different mental health problems, such as psychosis, that are associated with increased suicide-related experiences (Butler, Chapman, Forman, & Beck, 2006) and reduce suicidal thoughts, plans, attempts and suicide deaths in people experiencing psychosis (Bornheimer, Zhang, Li, Hiller, & Tarrier, 2020; Tarrier et al., 2014). A systematic literature review and meta-analysis of resilience-building

interventions in clinical (e.g., depression, diabetes, chronic illness) and non-clinical samples (e.g., nurses, students, immigrants) found a moderate, positive effect of CBT and mindfulness-based approaches in enhancing psychological resilience (Joyce et al., 2018). In addition, evidence suggests that brief experiences of positive emotions can foster resilience (Cohn et al., 2009). A potential approach to achieve this is through therapeutic procedures, such as the Broadminded-Affective Coping (BMAC; Tarrier, 2010). BMAC has been shown to increase perceived hopefulness and happiness in people with a diagnosis of schizophrenia (Johnson et al., 2013) and PTSD (Panagioti et al., 2012). Therefore, BMAC may be an effective procedure for fostering positive emotions which may help promote psychological resilience to suicidal experiences in people with a diagnosis of schizophrenia or non-affective psychosis (Cohn et al., 2009). The factors identified to be conferring psychological resilience to suicide in the studies described in Chapters 3 and 4 could inform the development of interventions that aim to nurture psychological resilience to suicidal thoughts and behaviours in this population.

7.4. General Limitations

The limitations of each empirical study in this thesis are described in the discussion sections of the individual chapters (Chapters 3, 4, 5 and 6). The rationale for methodological approaches used, including study research design, recruitment strategy, measures and statistical techniques is outlined in the methods section of this thesis (Chapter 2). Although this thesis had several methodological strengths, including the use of a mixed methods approach and conducting a longitudinal study which used validated measures and had relatively low attrition rate (i.e., 10%), there are four limitations that are worth discussing in more detail. The following section describes the general limitations across all empirical studies described in this thesis, pertaining to the study sample, statistical power, choice of measures and follow-up period adopted in the longitudinal study (Chapter 6).

7.4.1. Sample

It was important for the aims of this thesis that the results reflected the lived experiences of people with a diagnosis of schizophrenia or non-affective psychosis (Smith, 2008). Purposive sampling was aimed for to achieve maximum variation in the study samples (Baum, 2003; Patton, 2002). However, not all people with experiences of suicidal thoughts and behaviours and non-affective psychosis would have had an equal opportunity to participate in the empirical studies described in this thesis (e.g., non-English speakers; people under the age of 18; Chapters 4, 5 and 6).

While the participant sample in the qualitative studies (Chapters 4 and 5) consisted the same number of people who identified as males and females, the participant sample in the longitudinal study (Chapter 6) predominantly comprised people who identified as male (i.e., 80%) which was not representative of the population. This could have had particular implications for the findings of the longitudinal study and the conclusions that can be drawn. For example, women are more likely than men to report suicidal thoughts and behaviours (Crosby et al., 2011; Vijayakumar, 2015). Hence, women's experiences of resilience to suicidal thoughts and behaviours were underrepresented in the study. In addition, other types of gender identities (e.g., transgender, gender neutral, non-binary) were not represented across the studies of this thesis. These individuals are at an increased risk of experiencing suicidal thoughts, behaviours and self-harm due to mental health problems, discrimination, abuse and bullying in relation to gender identity (Bachman & Gooch, 2018; Centre for Suicide Prevention, 2020; Peng et al., 2019). Their perspectives on resilience and coping with suicidal experiences as a result of the specific challenges they face were not represented in the studies.

Individuals from Black, Asian and Minority Ethnic (BAME) and other ethnic minority backgrounds may have been under recruited. Although inclusion of people from certain ethnic minority groups was not a specified inclusion criterion, a maximum variation of the participants in the studies was aimed for (White, Schulz, Klein, & Klitzing, 2019). People from BAME communities face individual and societal challenges relating to discrimination, racism, social and economic inequalities that can have a negative effect on mental health (Memon et al., 2016; National Institute for Mental Health in England, 2003; Wallace, Nazroo, & Becares, 2016; Williams, 2018). As a result of these challenges, the resilience strategies that people from BAME backgrounds develop may be different to those of White British people. Therefore, a biased study design resulted in data that may have been biased towards those who were able to discuss their experiences which has implications for the validity and generalisability of findings (Oakley, Wiggins, Turner, Rajan, & Barker, 2003). The underrepresentation of different ethnic minority and gender identity groups may subsequently impact on the allocation of resources for research studies and services (Redwood & Gill, 2003).

Gatekeeping in services is a potential barrier to the recruitment of participants (Bucci et al., 2015; Sharkey, Savulescu, Aranda, & Schofield, 2010). Most participants were referred to the studies of this thesis by members of their mental health care team and, thus, may not be representative of the population of all individuals receiving mental health services for psychosis. Mental health

professionals have a role of ensuring recruitment and participation of individuals in research studies is up to ethical standards and is non-exploitative (McFadyen & Rankin, 2017). This can result in the selection of potential participants who mental health professionals deem able to participate in studies. This is a major barrier to the recruitment of people to research studies (Patterson, Mairs, & Borschmann, 2011). For example, people who were well and perceived as being more able to participate in research may have been overrepresented in the participant samples of this thesis. This may have subsequently impacted on the reported experiences of suicidal thoughts and behaviours, resilience, psychosis and the associated distress, and led to a skewed representation of these experiences towards a positive outcome. Furthermore, the research topic of suicide may have deterred mental health professionals from referring potential participants for the empirical studies of this thesis due to concerns that participation may increase suicidal thoughts and behaviours (Lakeman & Fitzgerald, 2009) which poses an issue to recruiting participants with suicidal thoughts and behaviours in research that examines such experiences. However, previous research has shown that taking part in suicide-related research does not increase experiences of psychological distress or suicidal thoughts and behaviours (Blades et al., 2018; Littlewood et al., 2019). There is evidence for a temporary lowering of mood following participation in a suicide-related research which does not result in increased risk of suicidal experiences (Littlewood et al., 2019). Overall, participation in suicide-related research can bring positive, long-term outcomes for participants (Biddle et al., 2013; Gibson, Boden, Benson, & Brand, 2014; Gould et al., 2005; Husky et al., 2014; Law et al., 2015; Littlewood et al., 2019; Owen, Gooding, Dempsey, & Jones, 2016; Reynolds, Lindenboim, Comtois, Murray, & Linehan, 2006; Rivlin, Marzano, Hawton, & Fazel, 2012; Taylor et al., 2010c). Therefore, the issues of gatekeeping and participant selection need to be considered in relation to the findings of this thesis and in further research.

The questions about psychological resilience cannot be fully answered without looking at the experiences of all people with psychosis and suicidal thoughts and behaviours. Individuals who attempt suicide and individuals who die by suicide may constitute distinct population groups but there is little evidence to support this claim (Beautrais, 2001). For example, a study found a significant overlap in the characteristics of the two types of population as well as some differences, such as individuals who were more likely to die by suicide were male and experiencing non-affective psychosis (Beautrais, 2001). It should be noted that the study relied on reports from significant others on the characteristics of individuals who died by suicide. Therefore, the reliability

of the findings can be questioned. Moreover, factors that may confer psychological resilience to suicidal thoughts and behaviours were not reported in that study. In order to advance the knowledge of resilience to suicidal experiences, there is a need for multiple large-scale studies, using convergent methodologies (e.g., mixed methods) to collect relevant data about, both, risk and protective factors that can be compared across samples and developed to nurture resilience to various suicidal experiences, specifically in people with a diagnosis of schizophrenia and non-affective psychosis.

7.4.2. Statistical power

This sub-section discusses the statistical efficiency of the sample size used in the quantitative work of this thesis (Chapter 6). The sample size and statistical analyses adopted in this thesis need to be sufficiently powered to detect significant effects. A potential issue is the non-significant results obtained in some of the analyses performed in the empirical study described in Chapter 6. For example, hopelessness did not predict suicidal thoughts and behaviours over time which was in contrast with the existing literature (Panagioti et al., 2015; Taylor et al., 2011a). Only the direct pathway between defeat/entrapment and suicidal thoughts and behaviours was significant for moderate and high levels of psychosis symptom severity and associated distress, and low levels of the resilience moderator variable. Although these results partially supported the initial hypotheses, the non-significant mediation effect of hopelessness in the relationship between defeat/entrapment and suicidal thoughts and behaviours may be due to low statistical power. It is important to note that the method of combining variables could have contributed to potential unexplained variance in the models. For example, defeat/entrapment was included in the main model as a composite variable which summed up the scores on the separate Defeat and Entrapment scales. However, the two scales may have had unequal weight and, therefore, contributed differently to the combined total score. This may have had an impact on the accuracy of the results.

The sample size ($n = 89$) in the empirical study described in Chapter 6 is considered low and susceptible to Type II error, which is the failure to identify a positive effect (Greenland et al., 2016). It is also plausible that the results reflect a genuine lack of interaction (see the discussion in Chapter 6). It should be noted that this was the first longitudinal study to investigate theoretically informed hypotheses for the moderating effects of psychological resilience, psychosis symptoms and the associated distress in the relationships between defeat/entrapment, hopelessness and

suicidal experiences. Future longitudinal studies using larger sample sizes and/or experience sampling methodologies would be useful in replicating the current findings.

7.4.3. Choice of measures

The measures used to assess the main outcomes of the empirical study described in Chapter 6, including suicidal thoughts and behaviours, psychosis symptom severity, psychosis distress, perceptions of defeat, entrapment, hopelessness, depression and resilience were all self-reported. This means that the outcomes may be susceptible to response bias which is observed when participants respond to questions falsely or inaccurately, in order to be viewed favourably by others (i.e., social desirability; Krumpal, 2013; Paulhus, 1991; Stone, 2000). Adopting a mixed methods approach that combines experience sampling and other methodologies (e.g., open questions, questionnaires, using measures designed by people with lived experiences), for instance, may mitigate the issues of standard self-report measures due to the ecological validity of multiple in-the-moment responses (Csikszentmihalyi & Larson, 2014; Tavakoli, 2012; Verhagen et al., 2016). Using a mixed methods approach, the qualitative work in this thesis helped develop the longitudinal study. For example, the inclusion of measures of psychosis symptoms, psychosis-related distress and resilience was guided by the findings of the qualitative studies (see Chapters 4 and 5). This approach may increase the robustness of and confidence in the results relating to the impact of resilience, psychosis and the associated distress on suicide-related experiences. Nonetheless, the measures used in this thesis have high reported validity and reliability across multiple studies including people experiencing psychosis (see Chapter 2 for psychometric properties of the used scales), suggesting that the measures of the key constructs assessed in this thesis are valid and reliable. The empirical study described in Chapter 6 investigated inherently subjective psychological constructs, such as hopelessness, defeat, entrapment and resilience. Therefore, self-report was deemed an appropriate method of measurement (Lazarus & Folkman, 1984).

7.4.3.1. Measurement of suicidal thoughts and behaviours

A measurement issue concerns the means of assessing suicidal experiences in the empirical study described in Chapter 6 of this thesis. Specific indices of suicidal thoughts and behaviours were measured using the Beck Scale for Suicidal ideation (BSS; Beck & Steer, 1991). This scale was considered appropriate in the study for two reasons. First, it is inclusive of different indices of suicide-related experiences, such as suicidal ideation, intent, suicide planning, past suicide attempts and desire to attempt suicide. These experiences are associated with an increased risk of

suicide attempts and suicide death (Corcoran, Keeley, O'Sullivan, & Perry, 2004; Nimeus, Alsen, & Traskman-Bendz, 2002; Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice, 2006). Second, there is considerable evidence indicating that the BSS has high psychometric robustness (see Batterham et al., 2015 for a review of suicide measures).

There is a debate about the overlap in the characteristics of people who have died by suicide and people who attempt suicide (Beautrais, 2001). Future research is needed to investigate whether the outcomes of the empirical studies described in Chapters 4 to 6 of this thesis differ in people experiencing psychosis with past suicide attempts and those who have died by suicide. For example, a study found that people with different mental health problems who died by suicide were more likely to be male, older and have experiences of non-affective psychosis, whereas people who attempted suicide were more likely to have experienced anxiety and social isolation (Beautrais, 2001). Psychological autopsy is considered a valuable method in suicide research (Isometsa, 2001). This methodological design identifies individuals who have died by suicide and collates detailed information about pre-defined characteristics from significant others and clinical records (Cavanagh, Carson, Sharpe, & Lawrie, 2003). However, the outcomes of psychological autopsy studies may be largely affected by the method of recording suicide deaths (e.g., by a coroner, medical examiner or legal representative) which varies across countries (Rockett, Kapusta, & Bhandari, 2011). Although this approach is complex, resource-intensive and poses ethical concerns pertaining to the potential emotional impact on informants, the obtained information may help elucidate potential psychological differences between people with non-affective psychosis who have attempted or died by suicide (Cooper, 1999; Khan, Anand, Devi, & Murthy, 2005).

7.4.3.2. Measurement of psychological resilience

The Resilience Appraisals Scale (RAS) was selected to measure psychological resilience in the empirical study described in Chapter 6 of this thesis. The scale measures positive self-appraisals implicated by the Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) in the development of psychological resilience, namely, perceived ability to gain social support, solve problems and cope with emotions. Therefore, the RAS has strong theoretical foundations. In addition, it has been validated in two studies with individuals with a diagnosis of schizophrenia and psychosis (Gooding et al., 2017; Johnson et al. 2010b).

There are three limitation of the RAS which need to be considered. First, the ability to "bounce back" from adversity to previous levels of wellbeing is considered a key resilience construct but is not included in the scale (Johnson et al., 2011b). Second, it is relatively new in comparison to other resilience measures (e.g., the Connor-Davidson Resilience Scale (CD-RISC); Connor & Davidson, 2003) and, as such, has not been extensively validated in studies, specifically including samples of people experiencing psychosis. There is an increasing number of studies examining its validity and reliability in research including people with PTSD (Panagioti et al., 2014), University students (Brown, Dorfman, Marmar, & Bryant, 2011; Brown, Joscelyne, Dorfman, Marmar, & Bryant, 2012; Johnson et al., 2010a; Lee et al., 2016; Zlomuzica, Preusser, Schneider, & Margraf, 2015), elderly people (Gooding et al., 2012), older adults experiencing depression (Li, Theng, & Foo, 2015a; 2015b), and the general population (Nagra, Li, & Upthegrove, 2016). Third, what is potentially missing in the RAS is inclusions of items assessing the impact of having religious and spiritual beliefs, as well as appraisals and understanding of psychosis and the interrelated suicidal experiences. These were identified important factors that could contribute to psychological resilience to suicidal thoughts and behaviours in the empirical studies described in Chapters 3 and 4 of this thesis. The psychometric properties of the RAS need to be further examined in studies with people experiencing psychosis in order to establish its validity and reliability in measuring psychological resilience.

7.4.3.3. Measurement of psychosis symptom severity and the associated distress

In the empirical study described in Chapter 6 of this thesis, the severity of psychosis symptoms was measured using a structured clinical interview (i.e., Positive and Negative Syndrome Scale (PANSS); Kay et al., 1987). In addition, the intensity of psychological distress associated with delusions and hallucinations was measured using four items from the Psychotic Symptom Rating Scales (PSYRATS; Haddock et al.,1999).

Although clinical interview measures may be less susceptible to response bias, compared to standard, multiple-choice measures, relying on interviewer's interpretations of participants' responses introduces rater bias. Rater bias can artificially increase baseline scores and distort observed effects (Hoyt, 2000). The issue of rater bias was mitigated by two approaches. First, the scales were administered and rated solely by the author of this thesis (KH) which reduced the potential reliability issues introduced with multiple raters. Second, KH received extensive training in conducting the PANSS and PSYRATS interviews and regular group and individual supervision with

a clinician where potential rating issues were discussed. These approaches have been advocated to achieve reliable results when using the PANSS interview (Opler et al., 2017; Opler, Yavorsky, & Daniel, 2017; Kay et al., 1987; Sajatovic et al., 2011).

An advantage of the interview approach to the assessment of mental health experiences is that it provides training guidelines that help increase administration and scoring consistency (Opler et al., 2017; Shear et al., 2001). This, in turn, can facilitate translation of results across studies and increase outcome variability. Furthermore, a clinical interview approach to the assessment of symptoms allows a detailed exploration of individuals' experiences which may be omitted by traditional self-report measures (Loney & Frick, 2003). Therefore, the PANSS and PSYRATS were deemed appropriate measures of psychosis severity and psychosis distress intensity in the empirical study described in Chapter 6 of this thesis.

7.4.5. Follow-up period

The empirical study described in Chapter 6 assessed a moderated mediation model using longitudinal data collected over a three-month period. There are two main limitations in relation to this study. The first relates to the lack of an intermediate measurement of the mediator variable (i.e., hopelessness) between the baseline and follow-up assessments. The second one relates to the short follow-up period used.

In order to observe a mediation effect, it is necessary to establish whether changes in the predictor variable precede changes in the mediator variable that, in turn, precede changes in the outcome variable (Kraemer, Wilson, Fairburn, & Agras, 2002; MacKinnon, 2008; Maric et al., 2012). This type of relationship involves temporality. To establish a temporal effect between variables, three aspects should be considered. First, there should be more than two assessment points. Second, all variables should be measured at all assessment points. Third, assessments should take place when changes in the mediator variable are expected to lead to changes in the outcome variable (Maric et al., 2012). Both, the mediator variable, hopelessness, and the outcome variable, suicidal thoughts and behaviours, were measured at follow-up in the empirical study described in Chapter 6 (see Chapter 2 for methodological considerations). Although these two variables were controlled for at baseline, due to the lack of a temporal delay in the measurement of the predictor, mediator and outcome variables, it was not possible to ascertain whether changes in the mediator would have had an effect on the relationship between the predictor and outcome variables over time. Two

assessment points were used because of time and cost constraints associated with completing the study. Furthermore, due to variability in the extant evidence and overall lack of longitudinal studies, it was challenging to determine the assessment point that would most optimally capture changes in the mediator variable which would then lead to changes in the outcome variable. Nevertheless, the empirical study described in Chapter 6 was the first attempt to investigate a multi-componential model of the moderating role of psychological resilience, psychosis and distress on suicidal thoughts and behaviours longitudinally.

7.5. Directions for Future Research

This section describes three research proposals that would address the abovementioned limitations and advance the extant literature on resilience to suicidal experiences in people with a diagnosis of schizophrenia or non-affective psychosis beyond this thesis.

7.5.1. A long-term longitudinal study of psychological resilience, psychosis, distress and suicidal experiences

A primary finding of the empirical study described in Chapter 4 of this thesis was that psychological resilience developed over time (Harris et al., 2019a). It has also been suggested that resilience can vary to different degrees, depending on the individual circumstances (Pietrzak & Southwick, 2011). Similarly, psychosis symptoms can fluctuate significantly in people in terms of onset, recovery and relapse, as well as duration and severity (Bebbington et al., 2006; Hafner, Maurer, & an der Heiden, 2013; Marwaha, Broome, Bebbington, Kuipers, & Freeman, 2014; Tandon, Nasrallah, & Keshavan, 2009). Therefore, a longer follow-up period of several months or years, including multiple points of assessment, may allow to observe significant changes in psychological resilience, psychosis and distress in relation to suicide precursors (e.g., defeat, entrapment, haplessness). An establishment of the optimal time frames for measuring changes in these variables is required before drawing clear conclusions about interaction effects.

A three-year longitudinal study incorporating contemporary, valid and reliable measures of perceptions of defeat, entrapment, hopelessness, psychosis symptom severity, psychosis distress, psychological resilience, and suicidal thoughts and behaviours at baseline and then at least every three months is proposed. The study should include a measure of hopelessness between measures of defeat/entrapment and suicidal ideation and behaviours. A long-term longitudinal study would potentially allow to make temporal inferences for the moderating effects of resilience,

psychosis symptoms and the associated distress on suicidal thoughts and behaviours in populations with a diagnosis of schizophrenia or non-affective psychosis. It is necessary to measure psychological resilience, psychosis, distress and suicidal experiences at least at two time points, considering the dynamic nature of these experiences. Moderated mediation analyses would be employed to investigate the relationships between these variables. A large sample size (e.g., greater than 100 participants) would be required to detect significant effects and reduce the possibility of a Type II error in the assessment of complex models with multiple interactions (Johnson et al., 2011).

7.5.2. An experience sampling study of the role of resilience in the relationship between suicide precursors and suicidal experiences in people with non-affective psychosis

Predicting suicidal experiences accurately requires a synthesis of a large number of suicide risk and protective factors across multiple levels of analysis, sensitive to temporal changes in the long- and short-term (Bearman & Silverman, 2019). An example of a technique which is used to assess temporal changes in pre-determined factors over a period of time is experience sampling. This method uses structured diaries (e.g., completed using smartphones) to assess daily subjective experiences in a specified moment in time (Csikszentmihalyi & Larson, 2014; Verhagen et al., 2016). The frequency of diary completion varies depending on the research question. However, some studies with clinical samples have used between six and ten prompts per day for a period of six days (Palmier-Claus et al., 2011; Verhagen et al., 2016).

In the context of the current thesis, an experience sampling study can assess the momentary changes in the relationships between psychological resilience, psychosis and the associated distress, suicide precursors (i.e., hopelessness, defeat, entrapment) and suicidal experiences in detail. Furthermore, suicidal ideation has been shown to fluctuate throughout the day (Ben-Zeev, Young, & Depp, 2012; Kleiman et al., 2017). Therefore, this method of data collection can provide a useful, in-depth account of participants' suicide-related experiences. Asking participants to complete measures of suicide several times a day represents an ethical issue and is associated with concerns about increased suicidal thoughts and behaviours as a result of participation in such studies (Bajaj et al., 2008; Lakeman & FitzGerald, 2009). However, an experience sampling study including a suicide-related assessment of people with borderline personality disorder found little evidence that frequent suicide assessments led to increased suicidal thoughts or behaviours (Law

et al., 2015). Given the sensitive nature of assessing suicidal experiences, it is important for clinicians and researchers to inform participants about potential impact and carefully evaluate the benefits of frequent assessment of suicidal thoughts and behaviours. Using less frequent prompts in experience sampling studies (e.g., once per day/week) in populations experiencing severe mental health problems, could mitigate the potential negative impact of frequent suicide assessments on individuals.

The experience sampling method has several advantages over traditional methods (e.g., pen and paper questionnaires) including ability to demonstrate a relationship between an individual and their environment, ecological validity, exploration of individual differences or changes that occur over time and reduced memory recall biases. However, a large sample size may be necessary if complex moderation and mediation effects are to be tested. Moreover, using momentary assessment may be unfeasible, time-consuming to develop and test, and potentially have high number of missing data points. All that considered, this method is suggested to be reliable in investigating events in everyday life, as they develop, across various settings (Csikszentmihalyi & Larson, 2014). Experience sampling would help determine how individual changes in key suicide precursors, resilience and psychosis and the associated distress may relate to changes in suicidal ideation and behaviours over time (Conner, Tennen, Fleeson, Feldman Barrett, 2009). Furthermore, the obtained data will help identify factors that may increase individual perceptions of resilience and psychosis and how they affect perceived hopelessness, defeat, entrapment, and experiences of suicidal thoughts and behaviours.

7.5.3. A qualitative study of the impact of perceived defeat, entrapment, and hopelessness on suicidal thoughts and behaviours in people with non-affective psychosis

The concepts of defeat, entrapment and hopelessness have been criticised for their substantial conceptual overlap, as scores on these measures are strongly associated with one another (Johnson et al., 2008; Tarsafi et al., 2015; Taylor et al., 2009). For example, previous studies have failed to demonstrate that the concepts of defeat and entrapment were significant and independent predictors of suicidal behaviour and should, therefore, be defined as a single factor (Griffiths, Wood, Maltby, Taylor, & Tai, 2014; O'Connor, 2003). The impact of perceptions of defeat, entrapment and hopelessness on suicidal thoughts and behaviours from the perspectives of people

with a diagnosis of schizophrenia or non-affective psychosis clearly warrants a detailed investigation.

A qualitative study investigating how people perceive the effects of key precursors of suicide, specifically defeat, entrapment, hopelessness and psychosis on suicidal experiences is proposed. To achieve this, people with experiences of psychosis and suicidal thoughts and behaviours would be recruited to take part in semi-structured, face-to-face interviews. The interview questions would be designed to elicit individual experiences of perceived defeat, entrapment and hopelessness, focusing particularly on understanding how these experiences, coupled with the impact of psychosis and distress, would impact on suicidal experiences. The potential protective effect of delusions and hallucinations against perceptions of defeat, entrapment and hopelessness would also be investigated. Thematic analysis would be used to analyse the data and identify themes within each interview transcript that address the research aim (Braun & Clarke, 2006). This study may provide clarity and understanding of conceptually overlapping constructs (i.e., how defeat, entrapment and hopelessness relate or differ; see Chapters 2 and 6 for a discussion of these concepts), their interaction with psychosis and psychological resilience, and their impact on suicidal experiences, specifically in people with a diagnosis of schizophrenia or non-affective psychosis. Especially with respect to psychosis, this study could highlight how experiencing delusions and hallucinations could lead to perceptions of entrapment, defeat, hopelessness and subsequent suicidal thoughts and behaviours.

7.6. Conclusion

This thesis investigated psychological resilience to suicidal thoughts and behaviours in people with a diagnosis of schizophrenia or other non-affective psychoses. Four psychological constructs were found to confer resilience to suicidal experiences, including: i. perceived social support, ii. holding religious and spiritual beliefs, iii. identifying reasons for living and iv. perceived positive personal skills and attributes (Chapter 3). From individuals' perspective, resilience encompassed understanding experiences, active behaviours (e.g., talking to people), and relationship dynamics (e.g., feeling supported; Chapter 4). In addition, psychological resilience developed over time and involved substantial, ongoing effort to develop and maintain. Psychosis experiences were associated with changes in behaviours and appraisals of self and were immensely distressing. Suicidality was perceived as the only way to escape distress (Chapter 5). In the long term, psychosis and the associated distress amplified the strength of the relationship between a key

suicide precursors, namely defeat/entrapment and suicidal thoughts and behaviours, when the

level of psychological resilience was at its lowest (Chapter 6).

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Appendix A. Resilience Definitions

Adapted from Fletcher & Sarkar, 2013, and McAslan, 2010.

Social and ecological systems definitions of resilience

- "The capacity to continue to exist in a domain in the face of change." "The resilience of an ecosystem is the measure of the ability of an ecosystem to absorb changes and still exist" (Holling, 1973).
- "Resilience is the speed with which a system returns to its original shape" (Pimm, 1984).
- "Resilience is the buffer capacity or ability to absorb perturbation or the magnitude of the disturbance that can be absorbed before a system changes its structure by changing the variables and processes that control behaviour" (Holling et al., 1995)
- "Resilience is the ability to resist downward pressure and to recover from shock. From the ecological literature, it is the property that allows a system to absorb, use and even benefit from change. Where resilience is high, it requires a major disturbance to overcome the limits to qualitative change in a system and allow it to be transformed rapidly into another condition" (Alwang et al., 2001).
- "Resilience is the potential of a system to remain in a particular configuration and to maintain its feedback and functions, and it involves the ability of the system to reorganize itself following the disturbance-driven change" (Walker et al., 2002)
- "Resilience is the capacity of the damaged ecosystem or community to absorb negative impacts and recover from them" (Cardona, 2003).
- "Resilience refers to the capacity of a social-ecological system both to withstand perturbations from, for instance, climate or economic shocks and to rebuild and renew itself afterwards. The loss of resilience can cause the loss of valuable ecosystem services and may even lead to rapid transitions or shifts into qualitatively different situations and configurations, evident in, for instance, people, ecosystems, knowledge systems, or whole cultures. Resilience has thus been treated as a measure of capacity or as a type of capacity itself, speed, ability or potential" (Stockholm Resilience Centre, 2009).

Organisational, national, and global definitions of resilience

- "The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. Comment: Resilience means the ability to 'resile from' or 'spring back from' a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need" (United Nations, 2009, p.24).
- "The ability of an individual, a household, a community, a country or a region to withstand, to adapt, and to quickly recover from stresses and shocks. The concept of resilience has two dimensions: the inherent strength of an entity – an individual, a household, a community or a larger structure – to better resist stress and shock and the capacity of this entity to bounce back rapidly from the impact. Increasing resilience (and reducing vulnerability) can therefore be achieved either by enhancing the entity's strength, or by reducing the intensity of the impact, or both" (European Commisison, 2012, p.5).
- "Ability of systems, infrastructures, government, business and citizenry to resist, absorb, recover from, or adapt to an adverse occurrence that may cause harm, destruction, or loss of national significance; capacity of an organization to recognize threats and hazards and make adjustments that will improve future protection efforts and risk reduction measures" (US Department of Homeland Security, 2008, pp.23-24).

Psychological definitions of resilience

- "The ability to bounce or spring back after being stretched or constrained or recovering strength or spirit" (Webster's New 20th Century Dictionary of English Language, 1958).
- "The ability to survive stress and to rise above disadvantage" (Rutter, 1979).
- "Ability to cope with challenges and threats while maintaining an internal and integrated sense of self." (Garmezy & Masten, 1986).
- "A process of […] successful adaptation despite challenging and threatening circumstances" (Garmezy & Masten, 1993).
- "Psychological and biological strengths humans use to master change successfully" (Flach, 1988).
- "The process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances" (Masten, Best, & Garmezy, 1990, p. 426).
- "The process of coping with disruptive, stressful, or challenging life events in a way that provides the individual with additional protective and coping skills than prior to the disruption that results from the event" (Richardson et al., 1990).

- "The ability to regenerate power to respond to the internal or external environment for survival, growth, or development (Jones, 1991).
- "Ability to demonstrate both strength and flexibility during the change process, while displaying minimal dysfunctional behaviour" (Conner, 1993).
- "Successful coping with biological and social risk factors" (Werner, 1993).
- "Capacity to bounce back, to withstand hardship, and to repair yourself" (Wolins, 1993).
- "Process of self-righting and growth" (Higgins, 1994, p.1).
- "Factors and processes that interrupt the trajectory from risk to problems such that adaptation occurs in spite of adversity" (Zimmerman & Arunkumar, 1994).
- "The ability to recognise pain, acknowledge its purpose, tolerate it for a while, until things begin to normalise (Flach, 1988; O'Leary & Ickovics, 1995).
- "The ability to recover from negative life experiences and become stronger while overcoming them" (Henderson & Milstein, 1996).
- "A dynamic process encompassing positive adaptation within the context of significant adversity" (Luthar, Cicchetti, & Becker, 2000, p. 543).
- "A class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development" (Masten, 2001, p. 228).
- "Ability to withstand or successfully cope with adversity" (Werner & Smith, 2001).
- "The personal qualities that enable one to thrive in the face of adversity" (Connor & Davidson, 2003, p. 76).
- "Complex repertoire of behavioural tendencies" (Agaibi & Wilson, 2005, p. 197).
- "A process by which individuals learn to overcome the negative effects of risk exposure, cope with traumatic events, and avoid negative trajectories of adjustment outcomes" (Fergus & Zimmerman, 2005).
- "The capacity of individuals to cope successfully with significant change, adversity or risk" (Lee & Cranford, 2008, p. 213).
- "An individual's stability or quick recovery (or even growth) under significant adverse conditions" (Leipold & Greve, 2009, p. 41).
- "The capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development" (Sapienza & Masten, 2011).
- "Both the capacity to be bent without breaking and the capacity, once bent, to spring back" (Vaillant, 1993).
- "The skills, abilities, knowledge, and insight that accumulate over time as people struggle to surmount adversity and meet challenges" (Saleebey, 1996).
- "The capacity to maintain competent functioning in the face of major life stressors" (Kaplan, 1996).
- "The successful adaptation to life tasks in the face of social disadvantage or highly adverse conditions" (Windle, 1999).
- "The ability of adults in otherwise normal circumstances who are exposed to an isolated and potentially highly disruptive event, such as the death of a close relation or a violent, life-threatening situation, to maintain relatively stable, healthy levels of psychosocial and physical functioning as well as the capacity for generative (i.e., capable of reproduction) experiences and positive emotions" (Bonanno, 2004, pp. 20-21).
- "A dynamic process that involves a personal negotiation through life that fluctuates across time, life stage and context" (Tusaie, 2004).
- "One of four possible reactions to adversity, together with thriving, survival and succumbing" (Carver, 1998).
- "Being perceived as more cuddly and affectionate in infancy and beyond; having no sibling born within 20–24 months of one's own birth; a higher level of intelligence; the capacity and skills for developing intimate relationships; achievement orientation in and outside school; the capacity to construct productive meanings for events in individuals' worlds that enhance their understanding of these events; being able to selectively disengage from the home, engage with those outside and then to re-engage; being internally oriented and having an internal locus of control; and the absence of serious illness during adolescence" (Barnard, 1994, pp.139-140).

Definitions of resilience to suicide

- "A perceived ability, resources or competence to regulate suicidal thoughts" (Osman et al., 2004).
- "An internal factor defending against suicidality" (Rutter et al., 2008).
- "Positive self-appraisals which buffer against the pernicious impact of stress" (Johnson, Gooding, Wood, & Tarrier, 2010).

How do *you* cope with suicidal thoughts and behaviours?

Many people experiencing serious mental health problems, such as psychosis or schizophrenia may also have suicidal thoughts and behaviours. Some people can develop strategies that help them cope with such thoughts and behaviours.

We want to find out how *you* cope with suicidal thoughts and behaviours.

If you are under the care of mental health services for problems with psychosis or schizophrenia and have had suicidal thoughts and/or behaviours at any time of your life, the project may be of interest to you.

If you are interested, please contact your care coordinator about possible referral or Kamelia Harris (Principal Investigator):
e-mail: kamelia.harris@manchester.ac.uk
Tel: 0161 306 2472

V3 13.02.17   IRAS ID: 211336

Resilience to suicidal thoughts and behaviours in people with psychosis

Participant Information Sheet

This project has been approved by an NHS research ethics committee (REFERENCE NUMBER: 17/NW/0211)

1. What is the purpose of this project? We would like to ask you some questions about how you have coped with suicidal thoughts and behaviours you may have had in the past. We want to find out about your experiences of dealing with such thoughts and behaviours.

2. Why have I been invited to take part in this project? You have been invited because you may have been having mental health problems such as psychosis (e.g., hearing /seeing things that others don't hear/see; having unusual thoughts that others don't necessarily have) and also have had suicidal thoughts/behaviours in the past.

3. Do I have to take part? No, you do not have to take part in the study if you do not want to. Taking part is voluntary. This means it is completely up to you to decide to join the study or not. Your decision to take part will not affect the care you are receiving now or in the future. If you decide to take part and sign the consent form but change your mind later, you are free to do that at any point during the study without giving a reason and without any consequence to your current or future treatment.

4. What will taking part involve from me? If you agree to take part, we will ask you to meet with a researcher. They will ask you some questions in the form of an informal interview. This will take about an hour. We are also interested to hear from you about what it was like doing the interview with us. Before and after the interview, you will be asked to complete a scale to measure if your mood has changed as a result of being interviewed. At the end of the session, the researcher will go through a brief exercise with you, designed to boost your mood.

5. We would like to audio record the session you have with the researcher, and then later write-it down. This is so we can look at what people have said again and make sure we understand what they mean. Members of the research team will listen to the recording. Your care team will not listen to the recording. Your name and any identifying information (e.g., where you live, or who your care coordinator is) will be removed from what we write down. If you agree to participate, you will be asked to provide informed consent by signing a Consent Form at least 24 hours after reading this information sheet.

6. What sorts of questions will I be asked? The things which we will ask include how you have coped with suicidal thoughts and behaviours. We will ask you about your personal experiences of these feelings and behaviours and how you think people can build coping strategies. One month after the interview, we will phone you and ask you what it was like to take part in suicide research. This interview will be audio recorded and is optional.

7. Will the information I provide be confidential? We will tell your care team that you are taking part in the study. However, any information you give us during the study is confidential to the research team. All information about you that is shared outside these people will have all identifying information, for example your name and address, removed. We would only share information with your care team if you told us something that we thought would put you or someone else in danger. If we needed to do this, we would talk to you first.

Individuals from the University of Manchester, the host NHS Trust or regulatory authorities may need to look at the data collected for this study to make sure the project is being carried out as planned. This may involve looking at identifiable data but all individuals carrying out these monitoring activities will have a strict duty of confidentiality to you as a research participant.

Your interview will be written out in full by a specialist company which is external to the research team and approved by the University of Manchester. All data will be stored securely at the University of Manchester. Your records (e.g., address, phone number) will be destroyed at the end

of the study. Data from the project (e.g., interview transcripts) will be kept for a minimum of 10 years after the date of any publication which is based upon it, to follow recommended good practice guidelines for research. After this period, your data will be destroyed. Audio recordings of the interviews will be destroyed once they have been written in full and verified. Direct quotes may be used in the write-up of the study but will not reveal your identity.

We plan to carry out a number of studies looking at coping with suicidal thoughts/behaviours in schizophrenia. With your agreement, the data collected as part of this study may be used in later studies carried out by the research team. The data may also be able to support studies carried out by other researchers. Anonymous data collected from this study may be shared with other researchers, they will not be able to tell who the data belongs to.

8. What are the benefits and risks of taking part? There will be no direct benefits for you taking part in this study. However, your views may help us understand what helps people when they have suicidal thoughts/behaviours. The study involves interviews with people experiencing psychosis who will have had past experiences of suicidal thoughts and/or behaviours. People experiencing serious mental problems may be vulnerable to distress. If this occurs, the interview can be stopped. Your care team will be informed of any risk-related issues identified during the interview, with your consent. We will provide you with contact details of services that can support and advise you. You will be working with a trained researcher who will be able to advise you on where to get help if you do feel upset. They will also call you the day after your interview to see how you are doing. They will also call you about a month after the interview to ask you how you felt about taking part in suicide research.

9. Will I be paid? We recognise the importance of the time that you are giving to participate in this study. As a "thank you" for your time, you will be entered in a prize draw and will have a chance to win a £20 Amazon voucher.

If you wish to travel to the University to complete the interview, you will be reimbursed for your travel expenses. The payment of travel expenses will be subject to the following conditions:

- You must provide receipts for the travel claim;
- Travel is limited to bus or rail travel (2nd/standard class);
- In special circumstances, other forms of travel may be agreed at the researcher's discretion.

10. What will happen if I do not want to carry on with the study? You can withdraw from the study at any time without giving a reason and without any consequence to your current or future treatment. No further data will be collected from the moment you withdraw. The data collected up to the point of your withdrawal will be retained.

11. What will happen to the results of the research project? The results of this study are part of a PhD project. The researcher will aim to publish the results in scientific articles and to present the results to other researchers. The results will also be written in a non-scientific way for anyone who is interested. There will be no identifying information in these articles. The results will not be available until the study has finished (2018).

12. Who is organising the project? This project is being organised by the University of Manchester (research governance sponsor) and Greater Manchester Mental Health Trust (GMMHT). The project is funded by Mental Health Research UK.

13. What if there is a problem? If you have a minor complaint, then you need to contact the researcher in the first instance:

KAMELIA HARRIS, Zochonis Building, University of Manchester, Manchester, M13 9PL; Telephone: 0161 306 2472; E-mail: kamelia.harris@manchester.ac.uk

If you wish to make a formal complaint or if you are not satisfied with the response you have gained from the researcher in the first instance, then please contact the Research Governance and

Integrity Manager, Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL, by emailing: research.complaints@manchester.ac.uk or by telephoning 0161 275 2674 or 275 2046.

14. Who can I contact for further information? If you have any questions or require any additional information, please do not hesitate to contact the researcher directly:

KAMELIA HARRIS   E-mail: kamelia.harris@manchester.ac.uk
                       Telephone: 0161 306 2472

Thank you for taking the time to read this participant information sheet!

Resilience to Suicidal Thoughts and behaviours (ReST)

Many people experiencing mental health problems, such as psychosis may also have suicidal thoughts and behaviours. Some are able to cope with suicidal thoughts and behaviours. We want to find out if resilience can reduce these feelings.

If you have a GP and/or are under the care of mental health services for problems with schizophrenia or non-affective psychosis, and have had suicidal thoughts or behaviours at any time of your life, the project may be of interest to you. You will be asked questions about your mental health and to fill out some questionnaires about your thoughts and feelings at the beginning of the study and 3 months after that.

We are grateful of your time. A compensation will be offered at the end of each assessment point.

If you are interested, please contact Kamelia Harris (researcher):
e-mail: kamelia.harris@manchester.ac.uk
Tel: 0161 306 2472

Resilience to Suicidal Thoughts and behaviours in people with psychosis (ReST)

1. **Invitation:** We would like to invite you to take part in this PhD project. Please read all information carefully. Take your time to think about taking part. If you would like more information or if there is anything you don't understand, please contact the researcher (details are at the end of this information sheet).

2. **What is the purpose of this project?** People with mental health difficulties may have thoughts and urges to end their life. This can be distressing and cause problems in their life. This project is to see if resilience can weaken people's suicidal thoughts/behaviours. Your experiences may help us understand this.

3. **Why have I been invited to take part in this project?** You may have had thoughts and urges to end your life, and you may have experiences of non-affective psychosis (e.g., hearing or seeing things other people don't hear or see and/or having unusual thoughts).

4. **Do I have to take part? No**. It is your choice to take part or not. You do not have to give us a reason. If you decide *not* to take part, your mental health care will not be affected and will continue as normal. If you want to take part but then change your mind, *you can leave at any time.* Your information will be retained but identifiable data, such as contact details, will be destroyed, where possible.

5. **What will taking part involve?**

> A member of your care team will introduce the study to you. With your agreement, they will inform us of your fit for the study and your contact details. This information will be confidential and will not be used in the study. If the study is not a good fit for you, the information will be destroyed.

⬇

> You will talk to a researcher about the study. At least 24 hours later, the researcher will contact you to ask if you are still happy to take part.

⬇

> Session 1: Talk to the researcher for about 2 hours at your home, another convenient location, or over the phone. They will ask you questions about your mental health, thoughts, feelings and experiences of taking part in the study. The questionnaires will not have your name on and will not be seen by your healthcare team. You can take breaks and don't have to complete them all in one go.

⬇

> Session 2: Meet the researcher in 3 months for about 2 hours to go over the same questions as in Session 1.

6. **What sorts of questions will I be asked?** We would like to know about how you have been feeling, and any thoughts or plans you have had to end your life. We will ask you about your mental health problems and your experiences of resilience. Finally, we will also ask you what your experience has been of taking part in the study.

7. **Will I be paid?** We are grateful for the time that you are giving to the project. We would like you to complete an assessment at the start of the project and 3 months after that. You will be paid £10 at the end of each of these two assessment periods, i.e., a total of £20.

8. **What are the risks in taking part?** There are no known risks of taking part in the study. However, when you meet with the researcher you will be invited to talk about difficult feelings and experiences. This may cause you distress, but you will be working with a trained researcher who will be able to help if you do feel upset. They can also call you the day after they have seen you to see how you are.

9. **What are the benefits pf taking part?** There are no direct benefits in taking part in this study. We hope what we find out from this study will help us to help other people in the future who have thoughts or plans of ending their life.

10. **Will the information I give be kept confidential?** Your care team will be informed of your participation in this project and they will be asked to provide information about your experiences (e.g., psychosis, suicidal experiences, risk), with your agreement. This is to check whether the study is a good fit for you. Any information you or your care team give us is confidential. At the beginning of the project, the researcher will explain that, with your agreement, information will be shared with your healthcare team if you missed your appointment or you told us you wanted to harm yourself or someone else. If your healthcare team cannot be contacted to share this information, you will be encouraged to contact emergency services. If we needed to do this, we would talk to you first. All information about you that is shared outside the project team will be anonymised (e.g., name, address removed).

 Audio recording: We will ask you if we can audio-record part of your meeting with the researcher. This may be checked by members of the research team to make sure we are doing things the way we should be. Please, tell us if you do not want us to record at any point of the assessment. This is fine, you can still take part.

11. **Who will see my information?** The project team and, sometimes, people from the University of Manchester, the NHS Trust or regulatory authorities may need to look at your information to make sure the project is being carried as planned. All people doing this will have a strict duty of confidentiality to you as a research participant. Your anonymised information will be stored securely at the University for 5 years, then it will be destroyed. This is so the research team can use anonymised information in future projects and contact you for future research opportunities. Identifiable information will be stored separately in locked filing cabinets at the University. The University of Manchester is the data controller and decides why and how information is being collected and what it is used for. You have rights to ask for a copy of the information held about you. If you would like to find out more about your rights, please contact the Data Protection Officer at information.governance@manchester.ac.uk.

From 25 May 2018 the University of Manchester are collecting and storing this information in accordance with the General Data Protection Regulation (GDPR) and Data Protection Act 2018 which legislate to protect your personal information. The legal basis upon which we are using your personal information is "public interest task" and "for research purposes" if sensitive information is collected. For more information about the way we process your personal information and comply with data protection law please see our Privacy Notice for Research Participants.

12. **What will happen to the results of the research project?** We will publish the results in scientific articles and present them to other scientists. We will also write the results in a non-scientific way for anyone who is interested. There will be no identifying information in these articles. These results will not be available until the project is finished (September 2020).

13. **What if there is a problem?** If you would like to make a minor complaint about the project, then in the first instance, please contact:

> **Kamelia Harris (Principal Investigator).** Division of Psychology & Mental Health, University of Manchester, M13 9PL. Telephone: 0161 3062472. E-mail: kamelia.harris@manchester.ac.uk
> or
> **Patricia Gooding (Principal Supervisor).** Division of Psychology & Mental Health, University of Manchester, M13 9PL. Telephone: 0161 2751971. E-mail: patricia.a.gooding@manchester.ac.uk

If you wish to make a formal complaint or if you are not satisfied with the response from the project team, then please contact:

> **Research Governance and Integrity Manager**, Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL. E-mail: research.complaints@manchester.ac.uk; Telephone: 0161 2752674.

14. **Who can I contact for further information?** If you have any questions or would like any further information, please do not hesitate to contact the principal investigator directly:

> **Kamelia Harris (Principal Investigator)**   E-mail: kamelia.harris@manchester.ac.uk
> Telephone: 0161 306 2472

Thank you for taking the time to read this!

Appendix C. Imputed Values

Ppt.	Scale, item	Scale range	Scale maximum score	Old total score	Imputed total score
Baseline variables					
015	BHS, item 5	0-1	20	2	4
035	BHS, item 8	0-1	20	5	5
045	BSS, item 15	0-2	42	14	14
077	Defeat, item 5	0-4	64	40	42
035	Entrapment, item 7	0-4	64	10	11
044	RAS item 9	1-5	60	33	36
027	PANSS neg, item 5	1-7	49	19	20
054	PANSS neg, item 5	1-7	49	14	19
027	PANSS gen, item 10	1-7	77	40	41
014	PANSS gen, item 12	1-7	77	23	24
054	PANSS gen, item 10	1-7	77	39	43
054	PANSS gen, item 12	1-7	77	39	43
030	PSYRATS del, item 1	0-4	24	5	14
030	PSYRATS del, item 2	0-4	24	5	14
030	PSYRATS del, item 4	0-4	24	5	14
030	PSYRATS del, item 5	0-4	24	5	14
087	PSYRATS hal, item 5	0-4	44	31	31
Follow-up variables					
006	BHS, item 12	0-1	20	2	3
006	BHS, item 13	0-1	20	2	3
006	BHS, item 15	0-1	20	2	3
035	BHS, item 19	0-1	20	6	6
035	BHS, item 20	0-1	20	6	6
020	Entrapment, item 14	0-4	64	40	41
039	PSYRATS del, item 3	0-4	24	7	14
039	PSYRATS del, item 4	0-4	24	7	14
039	PSYRATS del, item 5	0-4	24	7	14
037	PSYRATS hal, item 3	0-4	44	32	35
003	PSYRATS hal, item 5	0-4	44	26	27
029	PSYRATS hal, item 5	0-4	44	29	32
043	PSYRATS hal, item 5	0-4	44	29	31
055	PSYRATS hal, item 5	0-4	44	30	33

Note: BHS – Beck Hopelessness Scale, BSS – Beck Scale for Suicide Ideation, RAS – Resilience Appraisals Scale, PANSS neg – Positive and Negative Syndrome Scale (negative sub-scale), PANSS gen – Positive and Negative Syndrome Scale (general sub-scale), PSYRATS del – Psychotic Symptom Rating Scales (delusions scale), PSYRATS hal – Psychotic Symptom Rating Scales (hallucinations scale).

Appendix D. Protocols for Managing Risk and Participant Distress

Part 1: Overview

This protocol directs the practice of Kamelia Harris during the data collection phase of her PhD studies, including qualitative interviews and questionnaires. There is some potential for the participants to feel distressed during the study as the nature of the research may involve the consideration of events, thoughts and feelings which participants may find distressing, for example, feelings of hopelessness, depression and suicidal ideation.

To minimise the risk of a participant becoming distressed during the research process, the following protocol will be instigated:

1. The participant information sheet will clearly state that the study will include an interview and questionnaires that require participants to recall experiences relating to suicidal thoughts, feelings and depression.

2. Potential participants will be given 24 hours to decide if they wish to participate. The consent form contains a question which checks that this is the case.

3. The researcher will ensure that the study has been comprehensively explained to all participants before they consent so that they are fully informed and aware of what their participation entails.

4. Participants will be reassured that they do not need to answer any questions they do not want to, and it will be emphasised that they can withdraw from the study at any time.

5. The study will not commence until the researcher is satisfied that the participant is aware of the procedure, is relaxed, and has had the opportunity to ask any questions that they may have.

6. The researcher will emphasise to the participants that their data will remain confidential, with the exception that the researcher is obliged to disclose any information that poses a risk to the health and safety of the participant or others to a member of their mental health team. The specific issue is whether the participant well-being is a cause for concern regarding their level of suicidal thoughts and feelings.

7. Participants will need to provide their designated health contact's (care coordinator or GP) name, occupation, email address, and telephone number so that they can be contacted if necessary, to disclose information that poses a risk to the health and safety of the participant or others. All participants will be informed of this contact and will have consented to this prior to the study assessment.

8. Participants will complete a visual analogue scale (Biddle et al., 2013) based on their own assessment of their current emotional state before and after each session. This will inform the investigator whether the participant's emotional state is worse as a result of taking part in the study. The scale has been used in suicide research and provides an interactive way of measuring emotional states. Scores range from 0 (poor emotional state) to 10 (best possible emotional state). If the participants had indicated worse emotional state at the end, compared to the beginning of the interview, the principal investigator will discuss their concerns and inform them that as a duty of care they will pass on this information to their nominated mental health care contact. This will be done in collaboration with the participant, if possible.

9. All participants will also be provided with a contact list of organisations and helplines related to mental health at the beginning of the study assessment (e.g. Samaritans, Helpline), together with the study information sheet. It will be emphasised on the contact list of organisations, and by the researcher, that if they feel unable to keep themselves safe that they should go to A&E.

10. In the event of the participant displaying any signs of distress during the research process (for example if they report suicidal thoughts, means or plans), the researcher will discuss their concerns with the participant and inform them that as a duty of care they will pass on this information to their nominated health care contact (care coordinator or GP) with participant's cooperation. All participants will be informed of this contact and will have consented to this prior to the study assessment. Any course of action regarding communication of risk on behalf of participants will be discussed with a clinical supervisor (Professor Gillian Haddock).

11. Following the completion of the study, participants will again have the opportunity to ask any further questions or request clarification of an issue.

12. If distress or risk is indicated at any point during the session, then the information will be followed as per the specific details outlined in Part 2 of the Risk Protocol.

13. Participants will be offered to be contacted by the principal investigator the day following the assessment to check their wellbeing. Any risk information identified during this phone call will be communicated to the health care team in collaboration with the participant, where possible.

14. To address potential distress of the principal investigator, they will maintain regular contact throughout the research project with clinical supervisor (Professor Gillian Haddock).

Part 2: Screening risk and responding appropriately

During a session or other contact with participants, they may indicate an intention to harm themselves or others. Alternatively, they may provide information to the effect that a child or other vulnerable person may be in danger. Any information of this nature **must** be acted upon.

At the beginning of each session, the participant will be informed that what is discussed is private and confidential except if they indicate any current intention to harm themselves or others, or if they provide information to the effect that a child or other vulnerable person may be in danger. In such situations, the staff member has a legal duty to break confidentiality. All participants will have consented to this statement prior to taking part in the study assessments.

Responding to participant disclosure

The principal investigator will review the visual analogue scale and notify the health care contact in the event that participants report that they have experienced suicidal thoughts or behaviours.

In the case that the individual indicates current intention to harm themselves or others, the action taken is to remind the participant of the researcher's duty of care to break confidentiality where risk is identified (as previously outlined at the commencement of the session) and contact the identified health care contact (e.g., care co-ordinator, psychiatrist, or GP) to verbally report the situation. This notification will be made by telephone and confirmed in writing based on the following agreed standard format:

"During the course of a research session on (date & time), (patient's full name) disclosed information indicating risk of harm to him/herself / and / or others (specify as appropriate). This has been verbally reported to (health care contacts full name and time reported)."

In instances where the researcher is unable to speak directly to the healthcare contact, then they will speak to a duty worker and the contact details for the researcher will be left with a request for the contact to return the call. In addition, if the contact can be contacted via email, an email will also be sent. If there is no email address, this information will be reported via post.

The immediacy of this action will depend upon the time frame involved.

If an imminent risk is identified, i.e. the individual reports that they intend to harm themselves within the **next 48 hours**, action should be taken, and the session should change focus to the imminent threat. If this scenario occurs during a face-to-face contact, the individual may be given the option of phoning the health care contact themselves in the presence of the researcher or staying in the room whilst a call is made by the researcher.

In the eventuality that the health care contact is not contactable, a call should be made to the Crisis Team or A&E. The participant will be informed of this contact before the study assessment. If the scenario occurs during a telephone contact, the individual will be informed that confidentiality will need to be breached. The same plan as above will be implemented, and the individual should be called back to feedback the planned actions.

However, if the individual reports that they intend to act on their thoughts in a few days, or longer, or reports current thoughts but does not disclose any intent to act on these thoughts, then action by the researcher may involve continuing with the session considering the information discussed, reviewing how they are feeling at the end of the session, and calling the GP or care-coordinator or psychiatrist following this.

In either eventuality, the participant will be informed and will have consented to confidentiality being broken and, if at all possible, will be encouraged to work in collaboration with the researcher to this end. Unless there are circumstances that would contraindicate (e.g. risk to researcher safety), the participant should be informed that this action is to be taken.

In the eventuality that the individual discloses that a child / vulnerable adult may be in danger the Child/Adult Safeguarding Team should be contacted (see contact details below). If it is outside of 9am – 5pm and there is considered to be imminent risk to a Child/vulnerable Adult the police should be informed. Details of out of hours Child/vulnerable Adult Safeguarding Team services are listed at the end of the document.

In situations where the researcher is uncertain of whether information disclosed by a participant constitutes a risk, contact will be made with Professor Gillian Haddock (clinical supervisor) by phone who will advise on the appropriate action. If it is not possible to contact Professor Gillian Haddock, the researcher will contact another member of the supervisory team for guidance.

If the participant or someone else admits to a serious previously unreported crime then it may be necessary to report this to staff or the police as soon as possible.

FLOWCHART OF CONTACTS FOR COMMUNITY PARTICIPANTS WITH IDENTIFIED INTENT TO HARM SELF/ OTHERS

Ensure that you record all information and actions taken, including telephone calls and discussions with your clinical supervisor, in the participant's file. In situations where a Child/vulnerable Adult is at risk the appropriate Safeguarding Team should be contacted.

Participant expresses imminent harm to self/others

↓

ENSURE OWN SAFETY - LEAVE IF FEEL THREATENED

Call project supervisor if unsure   Call health care contact

↓   ↓

If project supervisor unavailable,   **If no answer**

contact clinical supervisor

↓

Call Crisis team

↓

If not available

↓

Call a member of the supervisory team or clinical supervisor

↓

IF UNSURE OF IMMEDIATE SAFETY, PHONE AMBULANCE AND/OR POLICE

↓

Wait for arrival

FLOWCHART OF CONTACTS FOR PARTICIPANTS WHO EXPRESS SUICIDAL IDEATION OR UNREPORTED HISTORIC RISK INFORMATION

Client expresses suicidal ideation or discloses unreported historic risk information

Explore current risk

If intent to harm self or others see previous, relevant flowchart.

If no intent or risk is historic

Inform relevant members of care team, e.g. care coordinator. Discuss case with supervisory team if unsure of risk.
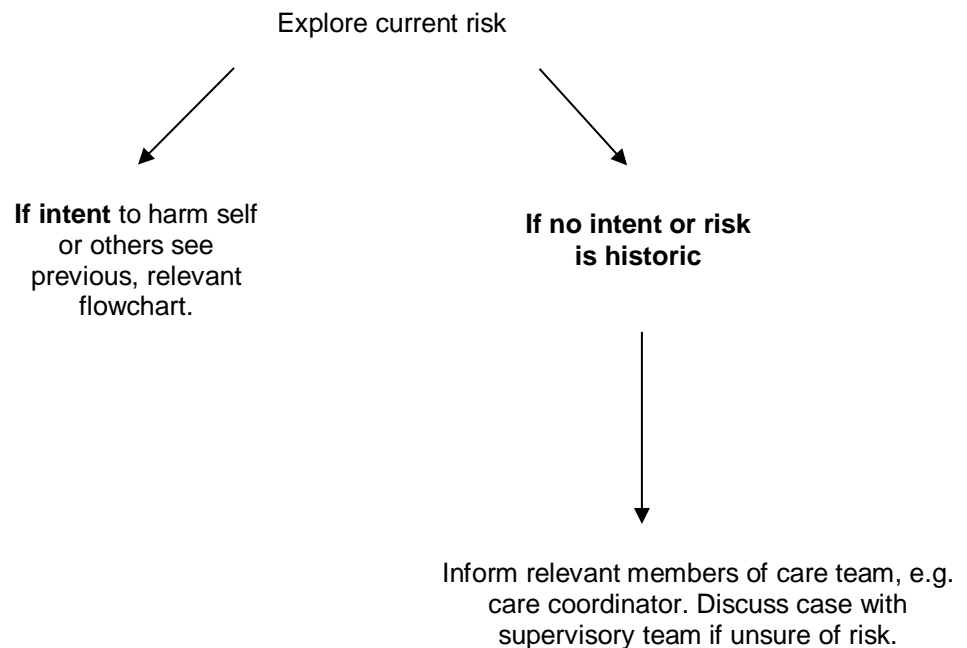
Part 3: Minimising risk to researcher

Were possible, participants will be seen as part of the study at a community location or the University, however, if these options are not suitable, then the research session may be conducted at the participant's home. Working within the community presents additional risk to the researcher. These have been assessed and are addressed within the lone worker risk assessment. Furthermore, the researcher is experienced in lone working in the community and will adhere to the lone worker policy and specific measures to minimise risk as specified within the risk assessment.

Disclosure of risk during an interview

Researchers are to follow these guidelines in the event that, when conducting an interview, they identify that a participant might be at risk, or could pose a risk either to themselves or to others. The examples presented here are to be modified according to the situation.

- **Prior to commencing an interview** with a participant, the researcher will carefully explain that, although the interview is going to be confidential, if any risk is identified or disclosed during the interview, then the researcher will have to communicate these concerns to other professionals (e.g., care coordinator or GP):

"Before we begin the interview, I just want to explain again that what we will talk about will be confidential, but if I feel that there might be a risk in what you are saying, for example to yourself or to others, I will need to pass this on to other staff members. But if I do this, I will tell you".

- If during the interview a participant's account indicates that they may be distressed or they disclose some type of suicidality or risk factors, the researcher will reflect the distress they appear to be in and will ask if they want to continue the interview, and/or offer a brief break:

"You seem to be going through a hard time at the moment – do you want to continue with the interview? You know we can take a break at any time or we can stop if you want to".

"It sounds like there have been a few things upsetting you recently – are you okay to continue with the interview or would you prefer to take a bit of a break for a few minutes?"

- If during the interview the participant has disclosed a **clear risk of suicidality** (for instance, a description of plans for self-harming, or explaining that they are in possession of medication to take an overdose), at the end of the interview the researcher will explain the need to communicate this to healthcare professionals:

"You've spoken about wanting to take an overdose with some medication you have, and it sounds like you are quite upset about some of the things we've been talking about. What I'm going to do, like we'd talked about at the beginning, is to speak with your care coordinator and tell them how you are feeling so that they know what's going on for you and so that they can help you"

- If during the interview the participant's account indicates or suggests a **possible risk of suicidality** (for example, talking about occasional fleeting feelings of wanting to die, or sometimes wishing they could just be gone to end their problems), the researcher will try to ascertain some further information as to whether there is intent to act on these thoughts:

"You've said that you sometimes have thoughts about suicide, do you mean that you have a plan for this or are they just thoughts?"

If the participant accepts, this information can be given to staff. If the participant declines, the researcher will contact a member of the supervisory team to consult with them, on a case by case basis, the need to report this to staff.

- If any risk of suicidality has been disclosed by a participant during an interview and **this risk needs to be reported to health care professionals**, the researcher will do so verbally and also confirm this in writing.

List of Useful Contacts

Samaritans – 116 123. Open 24hrs a day. They offer confidential emotional support by telephone, email, text, letter, and face-to-face. You can also e-mail jo@samaritans.org.

The Sanctuary – 0300 003 7029. Provide 24-hour support to adults experiencing mental health issues or who are in crisis. During the day from 6am to 8pm it offers a crisis support line. From 8pm to 6am it offers a physical space where you can talk things through. Note that there are no beds at the Sanctuary, so you can't sleep over.

Mind Infoline – 0300 123 3393 or text 86463. Open 9am – 6pm, Monday to Friday (except for bank holidays). You can also e-mail info@mind.org.uk

Mind – 020 8519 2122 or 020 8522 1725. Open weekdays 9am - 6pm. You can also e-mail supporterservices@mind.org.uk.

HOPELineUK – 0800 068 41 41; email: pat@papyrus-uk.org or text 07786 209697.

Crisis Point – 0161 225 9500. A short-term residential mental health service for adults suffering mental distress.

Crisis Line – 0161 922 3801. Open from Mon – Thurs, 5pm – 9am and from 5pm on a Friday until 9am Monday. Also, open on Bank Holidays.

Sane – 020 3805 1790. They provide specialist mental health emotional support. You can also e-mail info@sane.org.uk

Self Help – 0300 003 7029. Provide a range of resources across the North West of England for people experiencing mental illnesses. They offer talking therapies, eTherapy, peer support and groups. You can search the Self-Help site to find services that are closest to you.

Rethink – 0300 5000 927. Open 9.30-4pm, Monday to Friday. Rethink works to help everyone affected by severe mental illness recover a better quality of life. It offers a wealth of information, including fact sheets and practical advice.

NHS Direct – 111. Open 24hrs a day. They provide health advise and information.

Hearing Voices Network – 0114 271 8210. Peer support network. You can also e-mail nhvn@hotmail.co.uk

Turn2me.org – A web space for people to share, discuss and offload personal problems, find support and get useful information

If you feel you are going to harm yourself or you feel that you cannot keep yourself safe, please dial 999 or go to A&E.

Child Protection Service Contact Details

If a child is at immediate risk, contact the police on 999.

Manchester (24-hour service)	0161 234 5001
	or mcsreply@manchester.gov.uk
Salford (8.30am–4.30pm)	0161 603 4500
Duty (out of hours)	0161 794 8888
Trafford (8.30am–4.30pm)	0161 912 5125
Duty (out of hours)	0161 912 2020
Bolton (9am–5pm)	01204 337729
Duty (out of hours)	01204 337777
Halton (Mon – Thurs 9am-5pm; Fri 9am–4:30pm)	0151 907 8305
Duty (out of hours)	0345 050 0148
Cheshire West & Chester (Mon–Thurs 9-5; Fri 9–4:30pm)	01606 275 099
Duty (out of hours)	01244 977 277

Other:

NSPCC Child Protection helpline: 0808 800 5000 (free 24-hour service)

ChildLine: 08001111 (a free 24-hour helpline for children)

Distress Protocol

1. If during the session a participant becomes distressed, the researcher will acknowledge the distress they appear to be in and will ask if they want to continue the session, and/or offer a brief break.

2. If the distress is accompanied by disclosure of risk, then the Risk Protocol (Disclosure of Risk During an Interview) will be followed.

3. Towards the end of the session, participants will be debriefed by the researcher to ensure that they do not leave the room in a distressed state. This would involve asking how the participant is feeling, if participant does not report distress check this by engaging in ordinary conversation e.g. "What are your plans for the rest of the day?" and/or talk about a non-distressing subject before advising the participant of the next steps and ending the meeting.

4. If participant appears distressed but has not expressed any suicidal thoughts or intent:

5. Explore nature of cause of distress; demonstrate genuine interest by active listening skills.

6. If any doubt exists, make a direct enquiry of whether participant is having any suicidal thoughts.

7. If Yes, then follow Risk Protocol (Disclosure of Risk During an Interview).

8. If No, then enquire if a friend or family member could be called to provide ongoing support. If distress is severe, do not leave participant alone until resolved. If it continues, take guidance from clinical supervisor (Gillian Haddock), a member of the supervisory team (Patricia Gooding, Sarah Peters), or call the care coordinator.

9. Participants will be reminded of the facility of speaking to the research team after the end of the session, who may signpost to other organisations.

10. Participants will be offered to be contacted by the principal investigator the day following the assessment to check their wellbeing after taking part in the study. Any risk information identified during this phone call will be communicated to the health care team in collaboration with the participant, where possible.

11. All participants will be provided with signposting to helpful resources, if necessary. If the researcher is unsure whether this is necessary, they will call a member of the supervisory team to discuss.

Appendix E. Literature Search Strategy (Chapter 3)

Psychosis terms	Resilience terms	Suicidality terms
schizo* OR psychos* OR psychot* OR hallucinat* OR delusion* OR persecut* OR paranoi* OR "negative symptom*" OR "thought disorder*" OR "serious mental illness" OR SMI OR "severe mental illness" OR voice*	resilien* OR hardiness OR buffer* OR "bounce back" OR protect* OR cope OR coping OR tough* OR stoic* OR resist OR recover* OR adapt* OR growth OR "psychological strength" OR "inner strength" OR withstand OR "regulate emotion*" OR emotion* regulat* OR "surviv* stress" OR thrive OR "maintain* stability" OR overcom* OR rebound OR "problem solv*" OR "social support" OR "positive thinking" OR "positive thought*" OR "social reciprocity" OR appraisal*	suicid* OR parasuicid* OR hopeless* OR "self-harm*" OR "deliberate self-harm*" OR "attempted suicide" OR overdos* OR "self-injur*" OR "self-destruct*" OR "self-inflict*" OR "self-mutilat*" OR "self-poison*" OR "self-immolat*" OR automutilation OR "auto-mutilat*" OR "self-cut*" OR "auto-destruct*"

Note: Results were limited to English, humans, and/or peer-reviewed journals, depending on the specific database. On PsycINFO, an advanced search was conducted by manually inserting each term by category, and combining all together (e.g., #1. schizo*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]; #2. suicid*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]; #3. resilien* .mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]; #4. 1 AND 2 AND 3).

Example of a literature search conducted on Web of Science.

No.	Results	Search strategy
#1	383,050	TS=(schizo* OR psychos* OR psychot* OR hallucinat* OR delusion* OR persecut* OR paranoi* OR "negative symptom*" OR "thought disorder*" OR "serious mental illness" OR SMI OR "severe mental illness" OR voice*)
#2	5,655,339	TS=(resilien* OR hardiness OR buffer* OR "bounce back" OR protect* OR cope OR coping OR tough* OR stoic* OR resist OR recover* OR adapt* OR growth OR "psychological strength" OR "inner strength" OR withstand OR "regulate emotion*" OR "emotion* regulat*" OR "surviv* stress" OR thrive OR "maintain* stability" OR overcom* OR rebound OR "problem solv*" OR "social support "OR "positive thinking" OR "positive thought*" OR "social reciprocity" OR appraisal*)
#3	110,852	TS=(suicid* OR parasuicid* OR hopeless* OR self-harm* OR "deliberate self-harm*" OR "attempted suicide" OR overdos* OR self-injur* OR self-destruct* OR self-inflict* OR self-mutilat* OR self-poison* OR self-immolat* OR automutilation OR auto-mutilat* OR self-cut* OR auto-destruct*)
#4	2,027	((((TS=(("association between" OR "relationship between" OR "associated with" OR "associated to") NEAR/9 suicid*) OR TS=(("predict* factor" OR predictor*) NEAR/2 suicid*)) AND #1)))
#5	5,091	TS=(#1 AND #2 AND #3) OR #4

Note: This search incorporated the 'NEAR" function on Web of Science to include factors and predictors which are inversely associated or correlated with suicide. The search was refined by document type (article) and language (English).

Appendix F. Quality Assessment of Studies (Chapter 3)

Item	Quantitative and mixed methods studies scoring	Qualitative studies scoring
1. How clearly were the research objectives stated?	0. Not at all 1. Moderately 2. Very clearly stated	0. Not at all 1. Moderately 2. Very clearly stated
2. Were research questions and hypotheses based on theory?	0. Not at all 1. Moderately 2. Very	0. Not at all 1. Moderately 2. Very
3. How well was the sample size justified?	0. Not at all 1. Moderately 2. Very well	0. Not at all 1. Moderately 2. Very well
4. How likely are the individuals selected to participate in the study representative of the target population?	0. Not at all 1. Moderately 2. Very likely	0. Not at all 1. Moderately 2. Very likely
5. How well were the inclusion and exclusion criteria for participants defined?	0. Not at all 1. Moderately 2. Very well	0. Not at all 1. Moderately 2. Very well
6. How clearly were the dependent and independent variables defined?	0. Not at all 1. Moderately 2. Very clearly	Not applicable
7. What proportion of the data collection tools are shown to be reliable?	0. None of the tools are reliable 1. The study uses a combination of reliable and unreliable tools 2. All tools are reliable	0. Methodology is not clear 1. Partial justification of methodology provided 2. Justification of method of interviewing; recording of interviews; type of topic guide used
8. How appropriate are the research methods for the study design?	0. Not at all 1. Moderately 2. Very appropriate	0. Not at all 1. Moderately 2. Very appropriate
9. What is the percentage of the relevant confounders that were controlled either in the design or analysis?	0. 0% (none) 1. <49% (a few) 2. 50%-100% (most)	0. The analysis process is insufficiently detailed 1. The analysis is sufficiently described for replication 2. The analysis is very detailed and strategies to improve rigour are in place (e.g., triangulation, negative cases, inter-rater reliability)
10. Does the study describe causal inferences of the concepts under examination?	0. No causality inferred 1. Some level of causality inferred 2. Causality is inferred	0. No causality inferred 1. Some level of causality inferred 2. Causality is inferred

Appendix G. Characteristics of the Included Studies (Chapter 3)

Author(s), year, country	Design	Sample size	Sample characteristics	Diagnostic criteria	% of sample w/ schizophrenia	Suicidality assessment	Type of suicidality	Resilience assessment	Factors which may promote resilience	Method of analysis	Quality score
Albayrak et al., 2012, Turkey	Cross-sectional	94	Gender: suicide attempts group=54.3% males; 46.7% females; no suicide attempts group=62.5% males; 37.5% females. Mage: suicide attempts group=35.4yrs; no suicide attempts group=36yrs	DSM-IV-TR based on the Structural Clinical Interview (SCID)	100%	Self-reported suicide attempts	Suicide attempts	Temperament and Character Inventory (TCI)	Self-directedness and cooperativeness character scores were higher in the no suicide attempts, compared to the suicide attempts group	Logistic regression	12
Castelein et al., 2015, the Netherlands	Longitudinal, record linkage, 11.5 years follow-up	424	Gender: suicide=70% males; no suicide=71.3% male; Mage suicide=35.8yrs; no suicide =28.3yrs	DSM-IV diagnosis based on the Schedules for Clinical Assessment in Neuropsychiatry (SCAN)	100%	Database and patient file search of the Northern Netherlands Psychiatric Case Registry	Suicide death	Coping styles assessed by the Utrecht Coping List (UCL)	Active coping styles did not have an effect on the risk of suicide death	Cox regression survival analysis	11
Chang et al., 2014, China	Cross-sectional	89	Gender: 48.3% males. Mage: 20.5yrs	DSM-IV based on the Chinese-bilingual Structured Clinical	100%	Beck Scale for Suicidal Ideation (BSS)	Suicidal ideation	Internality, Powerful Others, and Chance Scale (IPC) used to measure	Negative relationship between suicidal ideation and internal	Multivariate regression	10

Study	Design	Sample	Demographics	Diagnosis	% Schizophrenia	Instrument	Outcome	locus of control	locus of control	Analysis	
Chung et al., 2015, USA	Mixed methods	56 (44 patients; 12 informants)	Gender: chart review sample=43% males; 57% females; interview sample=27% males; 73% females. Age: 20-60+	Interview (CB-SCID-I) Chart reviews	57% of the chart review sample and 67% of the interview sample had schizophrenia	Semi-structured interviews and a chart review instrument to collect data from patients' clinical records	Suicide attempt	Semi-structured interviews and a chart review instrument to collect data from patients' clinical records	Sense of purpose, psychological well-being and finding comfort in faith	Thematic analysis; Chi-square tests	6
De Hert et al., 2001, Belgium	Longitudinal, case-control, 11.4 years follow-up	126 (63 controls and 63 cases)	N/A	DSM-III-R	100%	Chart review instrument to gather clinical and demographic information from patients' clinical case notes	Suicide death	Chart review instrument to gather clinical and demographic information from patients' clinical case notes	Perception of having useful daily activities	Odds ratios	7
Fossion et al., 2004, Belgium	Cross-sectional, case-control	682 (341 cases; 341 controls)	Gender: 262 males, 79 females; Mage=31.2yrs	DSM-IV	100%	A document containing clinical and demographic questions	Suicide attempts	A document containing clinical and demographic questions	Perceived social cohesion and Islamic religious beliefs	Multivariate analyses	6
Fulginiti & Brekke, 2015, USA	Cross-sectional	162	Gender: no current ideation=31.3% female, current ideation=35.5% female; Mage no current ideation=38.6yrs, current ideation=34.8yrs	DSM-IV	100%	Extended version of the Brief Psychiatric Rating Scale (BPRS-E)	Suicidal ideation	Satisfaction with Life Scale (SWL), Index for Self-Esteem (ISE)	Self-esteem mediated the relationship between quality of life and suicidal ideation	Mediation analysis	14

Study	Design	N	Sample	Diagnosis	%	Suicidality measure	Outcome	Intervention/ method	Findings	Analysis	Quality
Gale et al., 2012, New Zealand	Cross-sectional	85	Gender: 70% male; Mage: 46yrs	Diagnosis made by clinical team and a consultant psychiatrist	100%	Clinical Interview Schedule (CIS-R)	Suicidal thoughts	Stages of Recovery Instrument (STORI)	Perceptions of high stage of recovery	Logistic regression	7
Gooding et al., 2017, UK	Qualitative interview study	23	Gender: 14 male, 7 female; Mage: 43.6yrs	ICD-10	100%	Suicidal Behaviours Questionnaire-Revised (SBQ-R)	Level of suicidality over the lifetime and in the past year	Interview questions	Internal mechanisms (acceptance, resistance, active responses) and external factors (social support, social reciprocity, religion)	Thematic analysis	12
Gooding et al., 2013, UK	Mixed methods	36	Gender: 19 female; 17 male; Mage: females=37.68yrs; males=46.65yrs	ICD-10	100%	Suicide Behaviours Questionnaire-Revised (SBQ-R)	Suicidal behaviour	Vignettes describing a protagonist experiencing psychosis and suicidality	Perceived social support countered suicidal ideation. Support from health professionals related to cessation of suicidal plans	Thematic analysis, correspondence analysis	10
Huguelet et al., 2007, Switzerland	Mixed methods	145 (115 outpatients; 30 inpatient controls)	Non-psychotic patients' gender: 10 males, 20 females; Mage=42yrs; Psychotic	ICD-10	100%	Semi-structured interviews	Past suicide attempts	Semi-structured interviews	Religious beliefs and spirituality inhibited suicide attempts in	Chi-square, Wilcoxon rank, Kruskal–Wallis test;	7

										25% and amplified suicide attempt in 11% of the sample	Content analysis	
			patients with suicidal attempts gender: 34 male, 16 female; Mage=39yrs; Psychotic patients without suicide attempts: 46 male, 19 female; Mage=42yrs									
Jahn et al., 2016, USA	Cross-sectional	169	Gender: 147 male, 22 female; Mage=51.9yrs	Chart reviews	100%	Brief Symptom Inventory (BSI)	Suicidal ideation	Maryland Assessment of Recovery in People with Serious Mental Illness (MARS)	Perceived recovery from mental health problems		Poisson regression	13
Jarbin & von Knorring, 2004, Sweden	Longitudinal, 10.6 years follow-up	88	Mage= 15.79yrs, followed up after 10.69yrs	DSM-IV	100%	Swedish register of death, Clinical records	Suicide deaths and attempts	Positive and Negative Syndrome Scale (PANSS), the Lancashire Quality of Life Profile; Brief Psychiatric Rating Scale	Satisfaction with family relations and with religious beliefs		Logistic regression	5
Johnson et al., 2010b, UK	Cross-sectional	77	N/A	ICD-10	100%	Beck Hopelessness Questionnaire (BHS), Beck Scale for Suicidal Ideation (BSS)	Suicidal ideation, hopelessness	Resilience Appraisals Scale (RAS)	Positive self-appraisals buffered against the impact of hopelessness		Moderation analysis	13

Study	Design	Sample	Demographics	Diagnosis	%	Data collection	Outcome	Predictor measure	Findings	Analysis	Score
Lin et al., 2014, Taiwan	Cross-sectional, case-control	203 (41 inpatient suicides, 162 living controls)	N/A	Chart reviews	100%	Retrospective chart review of patients' clinical records	Suicide deaths	Retrospective chart review of patients' clinical records	Frequent and positive staff-patient interactions and relationships	Conditional logistic regression	6
Miralles et al., 2014, Spain	Cross-sectional, case-control	375 (161 schizophrenia patients; 214 healthy controls)	Gender: 110 male, 51 female; Mage males=36yrs, females =40yrs	DSM-IV, either by clinical criteria or by Schedules for Clinical Assessment in Neuropsychiatry interview (SCAN)	100%	Patient clinical records	Number of suicide attempts	Temperament and Character Inventory-Revised (TCI-R)	Increased self-directedness and self-transcendence scores decreased number of suicide attempts in males	Bivariate logistic regression	9
Mohr et al., 2006, Switzerland	Qualitative interview study	115	Gender: 80 male, 35 female	ICD-10	100%	Semi-structured interviews	Suicide attempts	Semi-structured interviews around religious coping	Having religious beliefs	Qualitative content analysis	7
Oquendo et al., 2005, USA	Cross-sectional	460 (49 Latino; 411 non-Latino)	Mage=33yrs	Structured Clinical Interview for DSM-III-R	Schizophrenia/ schizoaffective disorder (Latinos = 51%, non-Latinos= 40.6%)	Columbia Suicide History Form (CSHF), Scale for Suicidal Ideation (SSI), Suicide Intent Scale (SIS), Medical Lethality Scale (MLS)	History of suicidal acts, ideation, intent, and medical injury resulting from most severe suicide attempt	Reasons for living inventory (RFLI)	Latinos had higher scores on survival and coping beliefs, responsibility to family, and moral objections to suicide subscales	Multivariate analyses	10

Ran et al., 2005, China	Cross-sectional	510	Gender: 239 male, 271 female	ICD-10 and CCMD-2- R	100%	Interview with patients using Present State Examination (PSE- 9) and a review of the history of illness	Suicide attempts	Interview with patients and family (Present State Examination; (PSE-9), Social Disability Screening Schedule (SDSS), General Psychiatric Interview Schedule)	Better family care or support	Logistic regression	9
Rosmarin et al., 2013, USA	Longitudinal, 8 months follow-up	47	Gender: 57.5% female; Mage=29.72yrs	Mini International Neuropsychia tric Interview and consultation with visiting psychiatrists	All patients presented with either a current (48.9%) or past (51.1%) psychotic disorder	Suicidality Module from the Mini International Neuropsychiatric Interview	Suicidal ideation	Brief Religious Coping Ability Scale (RCOPE). Religious affiliation assessed with an open-ended item. Schwartz Outcome Scale assessed psychological well-being	Use of positive, adaptive and functional religious belief and practice as a coping strategy	ANOVA	7
Skodlar et al., 2008, Slovenia	Qualitative interview study	19	Gender: 7 female, 12 male	DSM-IV	100%	Interviews	Suicidal ideation, plans, and attempts	Interviews	Relationship s with significant others.	Qualitative phenomenol ogical analysis	7

Tarrier et al., 2004, UK	Cross-sectional	59	Gender: 45 male, 14 female; Mage=27.2yrs	DSM-IV	100%	Beck Hopelessness Scale (BHS), Beck Scale for Suicidal Ideation (BSI)	Suicidal ideation and attempts	Self-evaluation and social support for schizophrenia interview and scales (SESS-sv), including two self-esteem dimensions: Positive and Negative=Evaluation of Self	Positive Evaluation of Self negatively correlated with suicidal ideation and hopelessness, but this was significant for hopelessness only	Path analysis	13
Termoshuizen et al., 2012, the Netherlands	Cross-sectional, record linkage	257,372 (12,580 with NAPD; 244,792 controls)	N/A	DSM-IV	100%	Retrospective review of three Dutch Psychiatric Case Registers, Northern Netherlands, Rotterdam-Rijnmond, and Middle Netherlands	Suicide deaths	Retrospective review of three Dutch Psychiatric Case Registers, Northern Netherlands, Rotterdam-Rijnmond, and Middle Netherlands	Strong family and community bonds	Cox regression	8
Vishwakarma et al., 2016, India	Cross-sectional	30	Gender: 100% males; Mage=34.6yrs	ICD-10	100%	Exner indices on the Rorschach inkblot psychodiagnostic test	Suicidal tendency	Multidimensional Self-Report Emotional Intelligence Scale-Revised (MSREIS-R)	Negative correlations between the ability to utilise emotions and the Exner suicide index on the Rorschach test	Bivariate correlation	7

Vrbova et al., 2018, Czech Republic	Cross-sectional	48	Gender: 24 males; 24 females; Mage=34.9yrs	ICD-10 and DSM-5	100%	Mini International Neuropsychiatric Interview (MINI)	Suicidal ideation and behaviours	Temperament and Character Inventory-Revised (TCI-R)	Negative associations between self-directedness and cooperativeness and suicidal behaviours	Stepwise regression	12
Wang et al., 2016, USA	Cross-sectional	184	Gender: 59.1% female; Mage=37yrs	DSM-IV	72.3% (schizophrenia=40.1%; schizoaffective disorder=32.2%)	Four items from the Youth Risk Behaviour Survey	Suicide deaths	Perceived Devaluation-Discrimination Scale, Toronto Alexithymia Scale (TAS-20)	High levels of emotional clarity can serve as a buffer against perceived stigma	Moderation analysis	12
Yan et al., 2013, China	Cross-sectional	514	Gender: no current suicidal ideation=50% males; current suicidal ideation=47.4% males. Mage: no current suicidal ideation=42.9yrs; current suicidal ideation=42.3yrs	DSM-IV or ICD-10	100%	Question about presence of past suicide attempts	Suicide attempts	World Health Organization Quality of Life Schedule-Brief (WHOQOL-BREF)	Suicide attempts were positively related to higher social quality of life.	Multiple logistic regression	10

Appendix H. Interview Topic Guide (Chapter 4)

The following two sets of questions and prompts serve as an interview guide.

 1. Dealing with suicidal thoughts/behaviours:

People sometimes tell us that they can also feel suicidal or sometimes act on suicidal thoughts:

- Have you ever felt suicidal?

- What happens to you (mentally and physically) when you have suicidal thoughts?

- How do you deal with suicidal thoughts?

- What stopped you from/helps you when you are feeling that way?

- How did you get through such bad times?

- Is there anything in particular that you found was really important in such situations?

- Can you tell me about a situation when that happened?

- Can you think of anything that helped you bounce back/get through suicidal thoughts? Describe what/how that happened.

Probing suicide attempts:

- Have you ever attempted to take your own life?

- What do you think triggered your suicide attempt?

- Is there anything in particular that caused you to transition from suicide ideas to concrete plans and acts?

- What did you do to stop this transition?

- What did you do to cope with suicidal behaviours?

- What has been helpful for you in overcoming suicidal behaviours?

 2. Resilience questions:

- What does resilience mean to you?

- How would you describe someone who is resilient?

- Do you think you have shown resilience when you are/were feeling suicidal?

- Can you give examples of how you would have liked to be resilient?

Close by thanking them very much for their time and ask if they have any questions.

End of interview

Appendix I. Interview Topic Guide (Chapter 5)

The following two sets of questions and prompts serve as an interview guide.

1. Psychosis symptoms:

   - Can you tell me about your mental health problems/issues?
   - What sort of symptoms do/did you experience?
   - How are/did those affect(ing) your life?

2. Experiences of suicidal thoughts/behaviours:

People sometimes tell us that they can also feel suicidal or sometimes act on suicidal thoughts:

   - Have you ever felt suicidal?
   - What do you think triggered your suicidal thoughts?
   - What happens to you (mentally and physically) when you have suicidal thoughts?
   - Have you ever attempted to take your own life?
   - What do you think triggered your suicide attempt?
   - Is there anything in particular that caused you to transition from suicide ideas to concrete plans and acts?

Close by thanking them very much for their time and ask if they have any questions.

End of interview

Appendix J. An example of transcript coding in NVivo