

Developing Guidance to Inform a
Clinically Meaningful and Feasible
Suicide Risk Assessment Measure for
use in Emergency Departments

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Declaration

I declare that this thesis is my own work, and that no material contained in it has been submitted for another academic award.

Kirstie McClatchey

Abstract

Introduction: Over 800,000 people die by suicide each year, and despite being a global public health issue, limited research exists exploring suicide risk assessment practices in emergency departments. The current thesis investigated emergency department suicide risk assessment practices and clinician experiences in Scotland, to develop guidance to inform the development of a clinically meaningful and feasible suicide risk assessment for these settings which is theoretically underpinned.

Methods: A mixed-method triangulation approach was utilised. Two systematic reviews were conducted to update the risk and protective factor literature. This was followed by a national survey of suicide risk assessment practices in emergency departments. Fifty-one clinicians across 17 emergency departments participated, and six clinicians participated in follow-up semi-structured interviews to investigate their experiences, which were analysed using thematic analysis. Findings of the thesis were triangulated using the ‘following-a-thread’ method, to develop guidance for informing the development of future risk assessment for use in emergency departments.

Results: The systematic reviews identified emerging risk and protective factors including, sexual orientation and internet usage. The survey identified substantial variation in practice between emergency department clinicians. Only 35 (68.6%) participants reported using a suicide risk assessment tool. Importantly, variation was found not only across clinicians and departments, but also within departments, with clinicians based within the same department reporting differing risk assessment practices, indicating both inter- and intra-department suicide risk assessment practice differences. The qualitative analysis of clinician experience established four major themes (current experiences; components of suicide risk assessment; clinical decision-making; suicide

risk assessment needs). Triangulation of findings developed recommendations for suicide risk assessment tools and training for emergency departments.

Discussion: The risk and protective factor literature has evolved due to societal changes, and there is substantial variation in suicide risk assessment practices, both across and within emergency departments. Clinicians also find suicide risk assessment challenging. There is a need for consistent training, appropriate and helpful guidelines, and the improvement of risk assessment tools to improve practice. It is recommended that suicide risk assessment tools are developed to align to clinicians' needs, while taking into account research from the health domain and from related psychological research domains.

Dedication

This thesis is dedicated to my late father Professor John McClatchey, who was unable to see the completion of this work. As one of the most intelligent, unprejudiced and honourable persons I have ever known, his advice, knowledge and attributes are greatly missed.

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Abbreviations

AEDs	Antiepileptic Drugs
AIDS	Acquired Immune Deficiency Syndrome
AMSTAR	A Measurement Tool To Assess Systematic Reviews
<i>aOR</i>	Adjusted Odds Ratio
ASIST	Applied Suicide Intervention Skills Training
BMJ	British Medical Journal
BPS	British Psychological Society
CAMHS	Child And Adolescent Mental Health Services
CDC	Centers For Disease Control And Prevention
CI	Confidence Interval
COREQ	Consolidated Criteria For Reporting Qualitative Research
DM-1	Type 1 Diabetes Mellitus
EQUATOR	Enhancing The Quality And Transparency Of Health Research
GP	General Practitioner
HCPC	The Health & Care Professions Council
HCR-20	Historical Clinical Risk-20
HIV	Human Immunodeficiency Virus
IMF	International Monetary Fund
IMV	Integrated Motivation-Volitional
IPA	Interpretative Phenomenological Analysis
IPV	Intimate Partner Violence
<i>IQR</i>	Interquartile Range
ISCO	International Standard Classification Of Occupations
ISD	Information Services Division
KMO	Kaiser-Meyer-Olkin
LGB	Lesbian, Gay, Bisexual
LGBT	Lesbian, Gay, Bisexual, Transgender
MDD	Major Depressive Disorder
<i>Mdn</i>	Median
MRC	Medical Research Council
MSHR	Manchester Self-Harm Rule

<i>N</i>	Number
NHS	National Health Service
NICE	National Institute For Health And Clinical Excellence
OCD	Obsessive Compulsive Disorder
ONS	Office For National Statistics
<i>OR</i>	Odds Ratio
PRISM	Promoting Risk Intervention By Situational Management
PRISMA	Preferred Reporting Items For Systematic Reviews And Meta-Analyses
PTSD	Post-Traumatic Stress Disorder
R&D	Research And Development
RR	Relative Risk
SAFE-T	Suicide Assessment Five-Step Evaluation And Triage
SAMH	Scottish Action For Mental Health
SAPROF	The Structured Assessment Of Protective Factors
SBU	Swedish Council On Health Technology Assessment
ScotPHO	The Scottish Public Health Observatory
<i>SD</i>	Standard Deviation
SIQ	Suicidal Ideation Questionnaire
SIS	The Suicide Intent Scale
SPRC	Suicide Prevention Resource Center
S-RAMM	Suicide Risk Assessment And Management
SSI	Scale For Suicide Ideation
SSRI	Selective Serotonin Reuptake Inhibitors
TBI	Traumatic Brain Injury
UK	United Kingdom
USA	United States
WHO	World Health Organisation

Preface

My interest in the topic area covered within this thesis developed over the course of a number of years, across both academic and in-work settings. I completed a Psychology undergraduate degree in 2010, during which I had become very interested in various aspects of mental health, including diagnosis, treatment, and ongoing support. Upon completion of the degree, I worked as a support worker in a Mental Health Support Service where I was able to experience the impact that mental illness can have on an individual's day to day life, including suicidal ideation and behaviours. While working as a support worker, the service experienced a number of deaths through suicide. The effect that it had on the staff and other service users was palpable, and this really hit home how suicide is not an individual issue, but one that affects the wider society, the workplace, and has an ongoing grieving process. This personal experience highlighted that there could have been better mechanisms in place to support staff to perhaps identify and prevent further deaths from suicide.

Subsequently I worked as a Research Assistant, exploring mental health and wellbeing in children, adolescents, and young people, which increased my interest in continuing on into research. From here, I completed a Master's degree in Health Psychology, where I became very interested in Health Services Research, and how research can improve vital health services. I also gained a passion for learning about and designing research using 'best practice' where possible, and in the various ways that interventions are developed, and the extent of the variation across different fields and disciplines in their intervention development methods and the theories that they apply.

With my interest in both mental health and health services research, in 2014 I contacted the Director of Studies for this thesis, Dr Jennifer Murray, regarding a potential

project which covered both of these topic areas. The topic, suicide risk assessment in emergency departments, at the time was a largely under-researched area, where large gaps in existing knowledge were present. There was also a need to conduct research that went beyond the norm (at the time) of simple goal setting and behaviour change interventions, thus allowing my topic area interests and interest in amalgamating different research methods to be combined. Therefore, a proposal was put forward to explore this topic area, which founded the basis of the current PhD thesis.

Publications and Presentations Associated with this Thesis

Publications

McClatchey, K., Murray, J., Rowat, A., & Chouliara, Z. (2017). Risk Factors for Suicide and Suicidal Behavior Relevant to Emergency Health Care Settings: A Systematic Review of Post-2007 Reviews. *Suicide and Life Threatening Behavior*. Advance online publication. doi:10.1111/sltb.12336

Publications Under Review

McClatchey, K., Murray, J., Chouliara, Z., & Rowat, A. (2017). *Protective factors of suicide and suicidal behaviour relevant to emergency healthcare settings: A systematic review and narrative synthesis of post-2007 reviews*. Manuscript submitted for publication.

Conference Presentations

McClatchey, K., Murray, J., Chouliara, Z., Rowat, A. (2017, August). *Suicide Risk Assessment in Emergency Departments: A Mixed-Methods Study of Clinician Practices in Scotland*. Paper accepted for presentation at the 31st Annual European Health Psychology Society Conference, The University of Padua, Italy.

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CHAPTER ONE: An Introduction to Suicide: Epidemiology, Background & Assessing for Suicide Risk

1.1. Epidemiology

Over 800,000 people die due to suicide every year, and there are many more who attempt suicide (World Health Organisation [WHO], 2015). In addition, suicide is likely to be under-reported in coroner reports due to its sensitive nature, with death by suicide sometimes being misclassified as an accident or another cause of death (WHO, 2014). In 2012, suicide was the second leading cause of death among 15-29 year olds globally, and suicide accounted for 1.4% of all deaths worldwide, making it the 15th leading cause of death internationally (WHO, 2014). Although there are available data for death by suicide, determining the actual number of suicide attempts is not clear. The WHO estimated that for every successfully completed suicide there are at least 20 known attempts (WHO, 2012). According to the Samaritans (2016), there are approximately 6,500 suicides each year in the United Kingdom (UK) and the Republic of Ireland, and it is estimated that in England alone there were approximately 110,000 inpatient hospital admissions for intentional self-harm (The Office for National Statistics [ONS], 2014). Furthermore, many more people experience suicidal ideation, with recent research in the UK suggesting that 6.1% of men and 8.7% of women had experienced suicidal ideation within 2014 alone (Spiers et al., 2014). It is therefore clear that suicide is a serious and wide-scale cause of death at a global, and UK level.

According to the latest figures, the male suicide rate is three times higher than that of the female rate, and the highest suicide rate in the UK is among men aged 45 to 59 years (ONS, 2016). Although the male suicide rate is three time higher, male suicide in the UK has decreased by 5.6%, and female suicide has increased by 8.3% (Samaritans,

2016). This could be suggestive of the picture of suicide risk changing, however these are based on year-on-year data, thus further long-term data is needed (Samaritans, 2016). While it is apparent that some groups within the population are at a higher risk than others, it is also clear from these figures that suicide risk among sub-groups in the population are changeable over time. Better suicide risk assessments and individualised assessments, rather than predictive assessment paradigms may be the most clinically useful in managing suicide risk within clinical practice. To better understand the needs of clinicians in terms of risk assessments, greater understanding of more local figures is therefore required for the purpose of the current thesis and as such, the Scottish context will be focused upon.

Overall in 2015, there were 120 fewer suicides in the UK than the previous year, a decrease of two per cent (ONS, 2016). This echoes findings from Scotland which indicate that the rates of suicide have more recently, been decreasing year-on-year (The Scottish Public Health Observatory [ScotPHO], 2016). The number of probable suicides registered in Scotland were 672 in 2015, down from 696 in 2014 (Information Services Division [ISD], 2016); roughly equating to two people dying by suicide each day. However, recent figures show a slight increase of suicides in Scotland to 728 in 2016 (ISD, 2017), indicating that annual numbers can fluctuate, therefore suicide figures should be viewed as part of an overall trend, rather than in isolation. Similar to the UK-wide figures, the suicide rate for males within Scotland was two-and-a-half times that for females (ISD, 2016), with female suicide rates for all age groups in Scotland converging and stabilising in recent years (Dougall et al., 2017). Furthermore, suicide rates are more than three times higher in the most deprived areas of the UK compared to the least deprived areas (ONS, 2016).

Given both the global and Scottish public health problem of suicide (ISD, 2016; WHO, 2015), adequate screening, assessment and prevention measures are needed in order to reduce suicide rates. In 2014, the ISD released a report of those who died by suicide between 2009 and 2012 in Scotland. Emergency department records showed that 16% of those who died by suicide attended an emergency department in the 30 days before death, and 25% attended within three months before their death. These figures exclude attendances which were likely to have resulted from the suicidal act. These findings show that emergency departments are often a place where someone at risk of suicide may present, whether with a physical injury, or for crisis emergency assessment or treatment, and according to these findings, the emergency department is the default, de facto option for acute contact for patients presenting with suicidal behaviours or ideation (Larkin & Beautrais, 2010).

Despite emergency departments being a core assessment point for patients at risk of suicide, little is currently known regarding national practices of how patients are being assessed for suicide risk when presenting to these settings. Therefore, research investigating current suicide risk assessment practices e.g., screening and assessment, in emergency departments is imperative, to improve clinical assessment practice and patient care. The remainder of this chapter will present a background to the key theoretical approaches to suicide and suicide risk assessment, including a discussion around clinical judgement and decision-making in risk assessment, comparing and contrasting current suicide risk assessment practices in healthcare with the forensic risk assessment field. First however, a background of suicide risk assessment, and operational definitions of key terms used throughout the thesis will be presented.

1.2. Operational Definitions & Background

Suicide can be defined broadly into three distinct categories (a) 'suicide', which is the act of intentionally ending one's own life (Nock et al., 2008), also known as completed suicide; (b) 'suicidal behaviour', which can be defined as self-harm or self-injurious behaviour and/or suicide attempts (Silverman, Berman, Sanddal, O'Carroll & Joiner, 2007); and (c) 'suicidal ideation', which can be described as self-reported thoughts of engaging in suicide-related behaviour (O'Carroll et al., 1996). Suicidal behaviour can be distinguished from non-suicidal self-injury, such as self-harm, in situations where the individual has no intent to die, yet engages in self-harming behaviours (Nock et al., 2008). As non-suicidal self-injury and suicidal behaviour with intent differ, particularly when assessing an individual for suicide risk. The current thesis will focus on suicide, broadly defined, but not non-suicidal self-injury as these are conceptually and pragmatically different (International Society for the Study of Self-Injury, 2007). As such, the risk factors associated with the two concepts may differ. This will allow a more focused approach towards suicide risk assessment to be followed within the current thesis.

Research into psychological theories of suicide has been conducted extensively since the publication of Durkheim's (1897) sociological exploration of suicide, in which Durkheim concluded that suicide rates between various religious, social and gender groups differed. Baumeister (1990) moved the academic exploration of suicide forward by proposing the theory of suicide as an 'Escape from Self'. In this conceptualisation, suicide begins with events that fall short of an individual's expectation, which in turn increases the awareness of the self's inadequacies, generating negative affect from which the individual desires to escape. More recently, Joiner (2005) suggested the Interpersonal Theory of Suicide, where it is proposed that the presence of thwarted belongingness (e.g.,

feeling alienated or a lack of belonging); coexisting with a high level of perceived burdensomeness (e.g., feeling a burden upon others), in addition to feeling hopeless and believing that both of these states will not change, can produce a desire for suicide or suicidal ideation. However, suicidal desire in and of itself may not necessarily cause a suicide attempt, but instead increases risk if an individual has a high desire for suicide, and acquires the ability to attempt suicide. Acquired ability to attempt suicide comprises of reduced fear of death, alongside an increased tolerance for pain within Joiner's (2005) conceptualisation. Although psychological theories of suicide are typically phrased in abstract terms, the interpretation of the motives of individual cases often relies on the personal opinions of the clinician (Lester, 2013), and thus the applicability of theoretical constructs explaining suicide and risk assessment are often misaligned.

A recent model of suicidal behaviour is the Integrated Motivation-Volitional (IMV) Model of Suicidal Behaviour (O'Connor, 2011). The model attempts to address the narrow focus that predictive models have adopted, and amalgamates the complex nature of suicide by exploring the relationship between background factors (e.g., vulnerabilities, deprivation), and trigger events (e.g., negative life events). The model also explains the concept of vulnerability of suicide to a greater extent than past theories of suicide, integrating this within the construct of life-trigger vulnerability factors. The IMV describes suicide as a behaviour, as opposed to a by-product of mental disorders, which is resultant from a relationship of factors. Intention is determined by feelings of entrapment, and this is triggered by feelings of defeat appraisals. Transitioning from defeat to entrapment to suicidal ideation to behaviour is determined also by specific moderators, such as threat-to-self (memory biases), motivational factors (burdensomeness), and volitional factors (exposure to suicidal behaviour and

impulsivity). Furthermore, background factors such as personality variables within the pre-motivational phase provide a biosocial model of suicide.

A structural model of the IMV and suicidal behaviour was recently empirically tested using structural equation modelling (Dhingra, Boduszek, & O'Connor, 2016). Approximately 2000 healthy individuals participated and completed self-reported measures including motivational and volitional phase variables, entrapment, suicide resilience, perceived burdensomeness and thwarted belongingness, impulsivity, exposure to suicidal behaviour, suicidal ideation, and suicide attempts. Results found that the IMV model was a good fit of the data, and explained a considerable amount of the variance in suicide attempts (27%), suicidal ideation (61%), defeat (79%), and entrapment (83%). The authors note that the IMV model is a useful framework for organising risk factors and for guiding future tests of suicidal behaviour. However, this model has only recently been developed, therefore requires further testing to explain suicide and suicidal behaviour.

A further recently proposed model to explain suicide and suicidal behaviour is the Cognitive Distortions and Deficits Model of Suicide Ideation (Fazakas-DeHoog, Rnic, & Dozois, 2017). The model suggests that the integration of cognitive distortions and cognitive deficits can explain suicidal ideation. Cognitive distortions can be described as dysfunctional thinking processes such as, hopelessness and negative evaluations of self and future, and cognitive deficits can refer to a lack of certain forms of thinking (e.g., the absence of information processing where it would be beneficial or problem solving deficits, problem solving avoidance, and cognitive rigidity). Fazakas-DeHoog et al. (2017) tested the model with 397 undergraduate students using questionnaires measuring suicide ideation, cognitive distortions, and cognitive deficits. The model was significant,

and findings indicated that only cognitive distortions have a direct effect on suicidal thinking, whereas cognitive deficits may exert their effects on suicide ideation via their reciprocal relation with distortions. The results of the current study suggest that a lack of adequate problem-solving, and a tendency to engage in problem-solving avoidance contribute to hopelessness and to negative evaluations about self and future, both of which are associated with greater suicide ideation. Findings underscore the importance of both cognitive distortions and deficits for understanding suicidality. However, the findings are preliminary, and were conducted only with undergraduate students. Furthermore, almost 80% of the sample were female. Given that the epidemiological rates of completed suicide in males is much greater than that of females, further evaluation of this model is needed, particularly as males are at a higher risk of suicide.

Moving beyond the theories and models of suicide, and with regards to suicide risk, research has explored factors that may increase the risk of suicide, and protective factors that may mitigate suicide risk, which provide a practical and operational evidence base for use in clinical assessments of suicide risk. A comprehensive systematic review of both risk and protective factors for suicide was carried out by McLean, Maxwell, Platt, Harris and Jepson (2008) and searched for high-quality literature relating to both risk and protective factors of suicide using a number of social and health based databases between 1996 and 2007. The review identified that mental illness, prior suicidal behaviour, health behaviours, such as substance misuse, physical health problems, genetic predisposition, and unemployment increased suicide risk. The findings also identified protective factors for suicide such as coping skills, reasons for living, physical activity and health, family connectedness, supportive schools, social support, religious participation, employment, exposure to suicidal behaviour, social values, and health treatment.

McLean et al. (2008) also identified gaps in both the suicide risk and protective factors literature including being affected by aftermath of suicide or suicidal behaviour; bereavement; looked after children; human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS); homelessness; being lesbian, gay, bisexual or transgender (LGBT); isolation; the media; older people; those who have been physically or sexually abused; urban deprivation; people with physical or learning disabilities; and self-help and help seeking. These substantive gaps in knowledge highlight a clear need for more specific research on potential risk and protective factors for suicide. In addition, the review, while comprehensive, is now somewhat dated as it only included papers up to 2007, and there have been a number of economic and societal changes since this time which may have impacted risk and protective factors for suicide (Lubin et al., 2010; Minagawa, 2013; Oyesanya, Lopez-Morinigo, & Dutta, 2015). Therefore, updating the literature is vital, particularly as both risk and protective factors are often evaluated as part of routine suicide risk assessment practice (Chehil, & Kutcher, 2012; Simon, 2010).

Finally, while McLean et al.'s (2008) review provides a strong basis for more pragmatic research to be developed in suicide risk assessment, its wide scope is a potential limitation. By including a wide scope of situations, the specificity of risk and protective factors for suicide in specific settings will be low. The current research will therefore focus on a single setting: emergency departments. As discussed in the previous section, emergency departments are a 'de facto' option for receiving acute care for suicide (Larkin & Beautrais, 2010), and are inherently tied to emergency services involvement in patient care and triage to other services. Adequate suicide risk assessment in the emergency department is therefore vital to successful patient outcomes, whether this be in the emergency department or in follow-on care by other services following triage.

1.3. Assessing & Screening for Suicide Risk

To assess whether someone is going to take their life, healthcare staff can conduct risk assessments or screening. According to the Suicide Prevention Resource Center (SPRC) (2014) the term suicide assessment refers to a comprehensive evaluation carried out by a clinician to assess suspected suicide risk, estimated danger to the patients, and to formulate treatment. Assessments can involve a structured questionnaire, and/or can also include open-ended conversations with the patients, their family and/or their friends to gain an insight into patients' thoughts and behaviours, risk factors, protective factors and medical and mental health history. In comparison, the term suicide screening refers to a procedure in which a standardised instrument or protocol is used to identify individuals who may be at risk of suicide. Screening may be conducted orally, with the screener asking the questions, by self-report, or through using a computer (SPRC, 2014). The assessment of a patient at risk of suicide is difficult. The decision as to whether to admit or to discharge a patient at potential risk of suicide completion is a critical one, yet one which suffers from lack of standardisation or, indeed, adequate tools, to support clinicians.

In addition to the issues of tools and standardisation of assessment, issues of specificity (i.e., the ability to identify correctly patients with no suicide risk), and sensitivity (i.e., the ability to correctly detect patients for suicide risk), in suicide risk screening and assessment have been raised. Horowitz, Ballard and Pao (2009) raise the issue of misidentifying patients when screening. For example, screening for suicide can result in false positives (people who screen positive but do not actually have a risk of completing suicide) and false negatives (people who are thought to be without risk, but are actually at risk of completing suicide). Horowitz et al. (2009) noted that falsely

labelling someone as 'positive' is of less consequence than falsely labelling someone as 'negative', although, both false positives and negatives can have a significant impact, either through financial cost, or cost to life. Bolton, Gunnell and Turecki (2015) note that due to difficulties in accurately assessing suicide risk, many people will be inappropriately labelled 'high risk' and provided with resources that they may not have needed, such as inpatient admission.

Furthermore, predictive retrospective research has found that 60% of patients who have been categorised as 'low risk' will go on to complete suicide within a year of discharge (Large, Sharma, Cannon, Ryan & Nielssen, 2011). Research consistently finds that suicide is notoriously difficult to predict (Large et al., 2011; Mulder, Newton-Howes, & Coid, 2016). The reasons for this are likely to be multifaceted. However, it is likely that those designated 'low risk' will have little or no access to crisis and/or community care, and may feel or be treated with less importance and urgency than others designated as higher risk, and may in turn desist from future help-seeking, which could potentially save their lives. In addition, the mere 'number' of risk factors present (as is often used in predictive type risk assessment tools) is not an indication of actual risk, as one risk factor alone may be enough for the patient to reach a threshold to engage in an activity (Douglas, Hart, Webster, & Belfrage, 2013). Effective and meaningful risk assessment must therefore move beyond the simple tallying of risk factors and consider the risk factors as relevant to the individual case. Achieving consistent and effective assessments of suicide risk is therefore of the utmost importance.

Patient suicide not only has implications for families, including symptoms of post-traumatic stress (Cleiren, Diekstra, Kerkhof, & van der Wal, 1994) and psychological distress (Séguin, Lesage & Kiely, 1995) but also impacts healthcare staff involved

(Yousaf, Hawthorne, & Sedgwick, 2002). Yousaf et al. (2002) surveyed UK based psychiatric trainees and found that, of 53 participants, 23 trainees had reported at least one patient suicide. The majority of these trainees felt supported by other staff members ($n = 18, 78\%$) during suicide assessment. However, the effect of the patient suicide on their personal and professional life identified that 52% of the participants were clinically stressed in the immediate aftermath. This indicates that patient suicide can have measured effects on a clinician's well-being.

On a larger scale, Gaffney et al. (2009) conducted a survey of 447 front-line professionals including nurses, emergency medicine staff, and psychiatrists. Almost 20% reported experiencing a patient suicide at some point in their career. Anger, sadness and guilt emerged as the most commonly reported emotional response to the experience of client suicide (43% of responses). Professional self-doubt was also expressed, more often by women. Following a patient suicide, 32% reported that they were not supported from immediate colleagues. This again shows that clinicians can be deeply impacted by the death of a patient by suicide and that this can manifest in multiple ways. In a more in-depth qualitative study, Macleod (2013) interviewed behavioural health clinicians who assess for suicide risk. Clinicians found suicide assessment to be an anxiety provoking process, as respondents felt very aware that to some degree they may have an impact over the future direction of a patient's life. This can lead to clinician burnout and compassion fatigue (Smart et al., 2014; Sprang, Clark, & Whitt-Woosley, 2007), which is characterised as a gradual lessening of compassion overtime due to the direct experience of helping others in distress.

Conversely, research has found that healthcare staff can view patients who display suicidal behaviours negatively (Saunders, Hawton, Fortune & Farrell, 2012). Pompili,

Girardi, Ruberto, Kotzalidis and Tatarelli (2005) found that staff in emergency departments of hospitals were negative or ambivalent toward suicidal or self-harming individuals. Furthermore, these patients were subjected to stigmatisation and lack of empathy, which can decrease the quality of care offered to these individuals. This research emphasises the need for protocols, proper guidelines and education around suicide assessment for emergency staff. Recent research which interviewed adult patients following a suicide attempt found that health personnel who stimulated hope, who were accessible, and who adapted help to the needs of the individual were all perceived as crucial to strengthening desire to live in their patients (Vatne & Näden, 2014). Therefore, research exploring how patients are assessed and treated in suicidal situations is crucial, as is a better understanding of the pressures, barriers and facilitators to providing high-quality suicide risk assessment. Defining 'high-quality' suicide risk assessment is a challenge however, as no 'gold standard' currently exists.

The British Medical Journal (BMJ) Best Practice (2015) note that when establishing the presence of suicidal ideation, the overall goal is to determine the risk of death by suicide. Therefore, history taking and a thorough psychological assessment, especially addressing suicide risk factors, is key. Furthermore, it is often recommended that a full suicide risk assessment evaluates an individual's specific risk factors, identifies an individual's current experience, and gathers information from other sources including family members and friends (Jacobs et al., 2010; Masango, Rataemane & Motojesi, 2009). In the generalised violence risk assessment literature, this is also recommended.

However, research has found that this approach is time consuming and resource intensive (Fazel et al., 2012), typically taking many hours, with one study finding that clinicians spend approximately 15 hours conducting a single risk assessment (Viljoen,

McLachlan, & Vincent, 2010). A more recent international study investigating risk assessment practice across 44 countries, and involving 2135 clinicians, found that clinicians who used Structured Professional risk assessment tools took an average of 7.8 hours, while those who did not use tools spent 2.8 hours assessing risk per patient (Singh et al., 2014). In terms of suicide risk assessment in emergency healthcare settings, it is clear that this traditional approach is not ideal, as time per patients is often limited (AUDIT Scotland, 2010).

Duncan and Murray (2012) conducted a systematic review investigating the barriers and facilitators of routine clinician outcome measurement. While risk assessment and outcome measurement are not the same, the task of using and completing pro-formas to inform patient care could be considered similar. Within this review, and one carried out by Gilbody, Hose and Sheldon (2013) which specifically focused on outcome measurement within psychiatric care, time was identified as an important factor of outcome measurement use in practice, with the lack of time involved to complete an outcome measurement, the number of patients seen by a clinician, and institutional restrictions which may limit the amount of time available to spend with patients, acting as a barrier. The authors also found that an outcome measure that was appropriate to the specific context, which could be practically applied, and did not require too much time to document was recognised as increasing the chances of being used in practice. As such, in busy practice, suicide risk assessment screening tools which are time efficient (e.g., SAD PERSONS scale; Patterson, Dohn, Bird & Patterson, 1983) are often used (Quinlivan et al., 2014) to facilitate clinical judgement, or staff rely on clinical judgment alone. To better understand the current state of suicide risk assessment in practice, the state of suicide risk assessment literature must first be considered. To do this, a discussion on more generalised approaches to other areas of risk assessment emerging from the field of

forensic psychology will be presented to provide a wider context for the current thesis' research. The suicide risk assessment literature, which largely sits within health psychology, will then follow.

1.3.1. Approaches to Suicide Risk Assessment

Bouch and Marshall (2005) broadly define approaches to risk assessment into three categories. The first is known as the 'clinical approach' whereby clinical decisions are made on the basis of unaided clinical judgment (Bouch & Marshall, 2005; Flewett 2010). Clinical judgement can be considered the sum total of all the cognitive processes involved in clinical decision-making and involves the appropriate application of knowledge and individual expertise to the problem at hand (Karthikeyan & Pais, 2010). The clinician's judgement is or should be informed by the evidence base, and is further developed through practice, experience, knowledge, expectations, and continuous critical analysis (Charlin, Boshuizen, Custers, & Feltovich, 2007; Kienle & Kiene, 2011). However, the clinical judgment approach to risk assessment can be subjective, and may be based on feeling as much as on evidence (Nock et al., 2010; Waern, Kaiser, & Renberg, 2016). Simon (2011) attests that some clinicians rely on 'gut assessments' of suicide risk. While these may be synonymous with the clinician's experiences, may be highly subjective.

Clinical judgement when used alone may be impacted by heuristics and biases (Hadlaczky, 2016). Heuristics are intuitive decisions constructed using available information that enable faster decisions to be made (Gigerenzer, 1991), and there are a number of inherent heuristics which are present in most people across many decision making situations (Tversky & Kahneman, 1973). There are three 'core' heuristics which were originally proposed by Tversky and Kahneman (1973): the Availability Heuristic; the Representativeness Heuristic; and Anchoring and Adjustment. Within the availability

heuristic, perception of future risk is based on recent past experiences (Tversky & Kahneman, 1973), with more recently and therefore readily available information being retrieved from memory faster, and is thus perceived as more important or relevant when making a decision.

Research has found that clinicians who have recently experienced a suicide are more likely to overestimate the suicide risk of patients (Hadlaczky, 2016). The representativeness heuristic refers to the influence of internal representation of an event, on the judgment of that event's likelihood (Tversky & Kahneman, 1974). Thus, patients that reflect a clinician's stereotype of a suicidal person are more likely to be assessed as high risk than those who do not represent the stereotype. Anchoring and adjustment ties more closely to the use of an 'anchoring' piece of information prior to considering additional information about a case or relating to a decision that impacts on an assessment (Tversky & Kahneman, 1974). Within the empirical anchoring and adjustment literature, these anchors are normally numeric to ease experimental control. However, they can also be a visual piece of information or written information. When an anchor is present, the decision maker is unduly influenced by this information and is less likely to properly adjust their initial assumption, even when conflicting information is presented; and this is consistent even when the anchor holds no real relevance to the decision or assessment being made. While there are many more heuristics and biases that could be discussed, it would be out of the scope of the current thesis to do this. What is more relevant is the consideration of the potentially biasing impact of improperly applied heuristics to the assessment of a patient exacerbated by the non-use of standardised risk assessment formulas.

One of the key criticisms of using a clinical judgment approach centres on inexactness (Murray & Thomson, 2010); with critics indicating that unaided clinical judgement has low inter-rater reliability and low predictive value (Flewett, 2010). In terms of risk assessment for severe violence, a government committee in Scotland has stated that unaided clinical judgement cannot continue to be supported (Flewett, 2010; Scottish Executive, 2000). As suicide risk assessment sits more-so within health psychology than forensic psychology, it did not fall under this ruling, though parallels between the two fields and the task of risk assessment ought to be considered.

Indeed, when considering clinical risk assessment, there have been severe criticisms, with Quinsey, Harris, Rice and Cormier (1999) even proposing that clinical judgement should be replaced completely with predictive algorithmic (actuarial) approaches. Many of these critiques emerged following the influential statement by Monahan (1984) that two of every three clinical risk assessments are incorrect. Deconstructing these arguments, though, is required to better understand the possible utility of harnessing the potential of more naturalistic decision making and better understanding the purpose of risk assessment. In a systematic review, Litwack (2001) suggests that clinical assessments may not be poorer than ones aided by predictive models when individualised, dynamic variables are taken into consideration. Clinical judgement also allows for the nuanced evaluation of emotional state (Menzies, Webster, & Sepejack, 1985) and observable behavioural traits (Berg, Bell, & Tupin, 2000). It is important, however, to keep in mind when considering the critiques around predictive efficacy of clinical approaches in risk assessment, that the purpose of clinical assessment is to assess and manage risk, not to predict risk; with the latter being largely clinically uninformative (Murray & Thomson, 2010).

The actuarial approach to risk assessment was developed in reaction to concerns around clinical judgment (Bouch & Marshall, 2005). This approach which uses formal, standardised assessment methods incorporating algorithms and objective measures for assessing risk, such as risk assessment tools akin to checklists or rating scale formats. This will be discussed in greater detail within the Suicide Risk Assessment Screening Tools section below. The actuarial approach focuses mainly on static or unchangeable risk factors that have been statistically associated with an increased risk of suicide (e.g., male gender, previous suicide attempts, family history of suicide), and can also incorporate some more flexible, dynamic or modifiable risk factors (e.g., mental illness, alcohol dependence, poverty). In a meta-analysis spanning 56 years' worth of psychological or mental health prediction data, Ægisdóttir et al. (2006) found that statistical methods of risk prediction showed greater accuracy than clinical judgement predictions, with a 13% increased accuracy using statistical compared with clinical methods. However, the main concern with this approach is that risk probabilities or predictions do not inform clinicians about the circumstances or severity of risk, and have limited clinical usefulness in informing risk management.

Research has questioned the actuarial approach's real-world usefulness (Godin, 2004), and actuarial risk assessment tools have been criticised as being less sensitive than clinical risk assessment to individual differences. It has been recommended that any risk assessment tool, should inform clinical risk assessment, but not substitute it (Flewett, 2010). Recently Cole-King and Platt (2017) discussed how prediction studies offer no clinical usefulness for individual patients, as even risk factors associated with the highest odds ratio and a significant statistical correlation may not be clinically useful when assessing individuals. Harriss and Hawton (2005) deliberate the need to move away from a predictive, actuarial model of assessment, noting that the process of clinical risk

assessment is not the same as the process of prediction, that clinical risk assessment is a complex decision-making process that takes into account a multitude of factors, and is considerably more sophisticated than the statistical techniques that have been employed by researchers to predict suicide.

A recent approach to risk assessment that takes into account the need to move away from actuarial prediction is 'Structured Professional Judgement' (Bouch & Marshall, 2005). This is an approach to risk assessment and not a specific instrument. The aim of Structured Professional Judgement is to combine evidence for empirically derived risk factors with individualised patient assessment, and the approach represents a composite of empirical knowledge and clinical expertise (Flewett, 2010). The approach has been incorporated into risk assessment instruments in the generalised violence literature such as the Historical Clinical Risk-20 (HCR-20) and its subsequently published versions (Douglas et al., 2013; Webster et al., 1995; Webster et al., 1997). The HCR-20 combines historical risk factors, clinical risk factors, and risk management items, within a 20-item structured worksheet, designed to identify critical factors for risk of violence. The consideration of risk items is then followed by a clinical risk formulation, scenario planning for best-, worst-, and most realistic potential scenarios for that person, and finally by an individualised risk management plan for each of the potential scenarios.

Moving beyond the individualised focus of most clinically focused risk assessments, the Structured Professional Judgement approach has also been incorporated into measures which aim to assess situational risk, and suggest ways to reduce the risk of individuals by improving aspects of the environment: the Promoting Risk Intervention by Situational Management (PRISM) assessment (Johnstone, Cooke, & Gadon, 2008). Structured Professional Judgment tools provide an evidence base for risk factors to be

assessed alongside professional judgment. The British Psychological Society (BPS) (2006) suggest that clinical judgement and decision-making is only guesswork and actuarial measures are said to provide a more scientific and objective assessment of risk factors. However, both approaches have the potential to be subject to bias and this can lead to restrictive practice. The BPS therefore recommended that good risk assessment and management practice should combine structured clinical judgement and actuarial measures, which can be considered as a Structured Professional Judgement approach.

Structured Professional Judgement approaches have been used to develop suicide risk assessments. For example, the Suicide Risk Assessment and Management (S-RAMM) was developed by Bouch and Marshall (2003), in response to the lack of Structured Professional Judgement assessments in the suicide literature. The S-RAMM follows the structure of the HCR-20, by distinguishing between static (e.g., unchangeable, such as gender) and dynamic factors (e.g., changeable, such as substance misuse), and is made up of 23 items measuring static, dynamic and future risk items. Khadivi, Evdokas, and Levine (2008) found that despite the S-RAMM's development, it has not received wide acceptance in clinical practice, partly because it is time consuming and it focuses mostly on chronic, non-affective, suicide risk factors. This is certainly not feasible for use in settings where time is limited, such as emergency department settings. As mentioned earlier, these types of assessment approaches can take up to 15 hours, with a mean assessment time of 7.8 hours (Viljoen et al., 2010; Singh et al., 2014).

The use of the Structured Professional Judgement approach is thus far limited in assessing patients for risk of suicide, and this may be due to time pressures (Fazel et al., 2012; Khadivi et al., 2008), and potentially conflicting information given regarding suicide risk assessment for healthcare settings. For example, department pro-formas are

recommended as a department strategy by The College of Emergency Medicine (2013). However, the Royal College of Psychiatrists (2010) recommend that locally developed risk assessment tools should be abandoned, as all risk assessment tools should be evidence-based and widely validated. The National Institute for Health and Clinical Excellence (NICE) (2016) guidelines discuss that risk assessment tools may be considered to help structure risk assessments, which mimics the Structured Professional Judgement approach, and that actuarial approaches such as risk assessment tools and scales to predict future suicide or repetition of self-harm, should not be used. This highlights the conflict within suicide risk assessment. To further understand what suicide risk assessment and screening tools currently exist, a discussion of these and their clinical validity within the emergency department will now follow.

1.3.2. Suicide Risk Assessment Screening Tools

Numerous suicide risk assessment and screening tools have been developed to assess and predict the risk of suicide, these fall under two of the main approaches discussed in the previous section, actuarial (predictive) and Structured Professional Judgment. Within the actuarial tools, the Beck Hopelessness Scale (BHS) (Beck, Weissman, Lester, & Trexler, 1974) was designed to measure major aspects of hopelessness and investigates pessimism using 20 true or false items. Recently, Chan et al. (2016) conducted a systematic review investigating risk assessment scales which included the BHS. Results found that the BHS did not have sufficient evidence to support its use. The Suicide Intent Scale (SIS) (Beck, Morris, & Beck, 1974) was also developed by Beck and colleagues and aimed to assess the severity of suicide intent in those with a history of past attempts. It is a semi-structured, interviewer administered, assessment scale consisting of 15 items which is divided into two sections. The first section of eight

items make up the circumstances of the suicidal action section, and the final section of seven items are based on the patients self-report of their thoughts and feeling regarding the incident. Harriss and Hawton (2005) conducted a study exploring predictive value of the SIS using follow-up data from nearly 2500 patients over an average of 5.2 years. Results found that the positive predictive value of the SIS was low, even for those who had eventually died by suicide, indicating that the SIS cannot predict which individual patients will ultimately die by suicide.

Cooper et al. (2006) attempted to create a risk-stratification tool for use in the emergency department for patients attending with self-harm. This led to the development of the Manchester Self-Harm Rule (MSHR). The MSHR uses four questions to identify patients for suicide risk. Questions assess for history of self-harm, psychiatric treatment past and present, and whether an overdose is present. However, results have found that although the MSHR has good sensitivity, it has poor specificity for predicting repetitions of self-harm or suicide in patients who present to the emergency department (Wills & Franklin, 2007).

A more commonly used suicide risk assessment tool within the emergency department (Quinlivan et al., 2014) is the SAD PERSONS scale (Patterson et al., 1983), which was developed in the United States (USA) originally for medical education, to teach medical professionals clinical suicide risk assessment, and to determine risk of suicide in patients. SAD PERSONS acts as a 10-item acronym, and each letter assesses a risk factor for suicide, which include gender; age; mental health; substance misuse; lack of social support. A modified version of the SAD PERSONS scale was later developed (Hockberger & Rothstein, 1988), with one item being substituted to the modified version assessing future suicide intent, and the scoring system being changed for each item.

However, since its original development in the 1980's, the SAD PERSONS scale has experienced little modification (Saunders, Brand, Lascelles, & Hawton, 2014).

Large scale studies show low accuracy in SAD PERSONS predicting suicide. For example, Bolton, Spiwak and Sareen (2012) conducted a study exploring the ability of the SAD PERSONS scale to predict suicide from over 4000 patients presenting at emergency departments in the USA. SAD PERSONS showed poor predictive ability for future suicide attempts and did not predict suicide attempts better than chance. Furthermore, Warden, Spiwak, Sareen and Bolton (2014) conducted a systematic review to assess the performance of SAD PERSONS in clinical situations. Of the three studies included in the review, none showed that the tool accurately predicted suicidal behaviour. More recently, the Swedish Council on Health Technology Assessment (SBU) (2015) conducted a systematic review examining scientific evidence for the use of suicide risk assessment screening tools in assessing risk of future suicidal behaviour. A total of 13 screening tools that assessed the risk of subsequent suicide attempts, including SAD PERSONS, and nine screening tools that assessed the risk of suicide were identified. Not one of the tools met the sensitivity requirements (> 80%), which measured the proportion of individuals identified as high risk, nor specificity requirements (> 50%), which measured the proportion of those identified as low risk. The authors concluded that SAD PERSONS is not reliable, and should not be used in its present form.

This is concerning, as Quinlivan et al. (2014) found that SAD PERSONS was the most commonly used risk assessment scale in emergency departments, to assess suicide risk in England following self-harm. Research consistently shows that when using various assessment and screening tools, that suicide cannot be accurately predicted (Allgulander & Fisher 1990; Carter, Clover, Bryant & Whyte, 2002; Motto & Bostrom, 1990). The

Royal College of Psychiatrists (2010) noted that risk assessment is a core function of medical practice but recognised that it has come to dominate clinical practice, and this has given rise to a 'tick box' mentality, together with the increased use of junior staff conducting risk assessments. Furthermore, they noted that risk assessment per se has a very limited, and short-term, predictive power. The College members further voiced their dissatisfaction with the continued use of locally developed risk assessment tools that lack validity, absorbed too much clinical time, devalued engagement and impaired empathy. Simon (2009) discusses the futility of suicide risk assessment tools, noting that tools that are created and soon replaced with others, and some tools that become institutionalised are in continued use despite multiple occurrences of suicide. Simon (2009) goes on further to say that forms fail to assess protective factors of suicide. Therefore, further research into the current practice of suicide risk assessment is needed in order to develop an evidence-based, but clinically informed suicide risk assessment practice that is feasible for busy emergency departments.

1.4. Current Suicide Risk Assessment Practice in Emergency Settings in the UK

At present, current suicide risk assessment in emergency departments in the UK is not clearly defined. To gain an understanding of current practice in England, Quinlivan et al. (2014) conducted a study across 32 hospitals, to identify which risk scales were used for assessment of self-harm by emergency clinicians. In 28 of 32 (87.5%) hospitals, there was a protocol or guideline for the immediate assessment of suicide risk for patients who presented with self-harm in the emergency department. However, this indicates that 12.5% of hospitals had no guidelines or protocols that staff were aware of when presented with an individual at risk of suicide. Moreover, according to the Scottish Action for Mental Health (SAMH) (2012) if someone has sustained physical injuries as the result of

a suicide attempt, the protocol for what happens to an individual at emergency department services in Scotland will vary depending on the local hospital. This further indicates the lack of consistent guidelines or protocols for individuals presenting at emergency departments who are at risk of suicide in Scotland.

This lack of clarity may lead to inadequate assessments at worst, and inconsistent care across locations at best. Furthermore, in a recent pilot study conducted in the UK, the National Confidential Inquiry into Suicide and Homicide (2013) found the overall quality of suicide risk assessments were considered unsatisfactory in 36% of patient suicides. Recent findings also show that training and development of clinical guidelines can improve mental health practitioners' confidence in assessing and managing clinical risks (Delgadillo et al., 2014), therefore implementation of this in current practice may be beneficial.

1.5. Thesis Aims & Objectives

Despite suicide being a critical public health problem (WHO, 2015), with a quarter of those who die by suicide being known to have attended an emergency department within three months prior to their death (ISD, 2014), very little is actually known about the current suicide risk assessment practices in emergency departments across the UK. Furthermore, research suggests that the suicide risk assessment tools currently in use have poor predictive ability and are not clinically useful (Bolton et al., 2012; SBU, 2015). Also, full and thorough risk assessments which do not rely on prediction, such as Structured Professional Judgement and clinical interview approaches are resource and time intensive (Fazel et al., 2012), and are therefore not feasible for use in emergency settings due to time and training capabilities. However, without adequate tools to support clinical assessments of suicide risk, clinical decisions have the potential to be prone to bias (Gale,

Hawley, Butler, Morton, & Singhal, 2016), potentially leading to inconsistencies in patient care and outcomes. It is therefore imperative that an empirically informed, clinically useful and feasible suicide risk assessment for use in emergency healthcare settings is created to address this need.

The overarching aim of the current thesis is to develop empirically underpinned recommendations, which are clinically useful to support naturalistic decision-making within suicide risk assessment in the emergency department. It will achieve this through the use of multiple methods and approaches, which will be discussed in Chapter 2. In brief, this thesis will update literature relating to risk and protective factors of suicide that can be feasibly assessed in emergency settings; investigate current suicide risk assessment practice in emergency departments; and gain in-depth views from clinicians working in these settings regarding their current suicide risk assessment practices. The thesis will then use an across-method methodological triangulation approach (Bekhet & Zauszniewski, 2012), to collate and triangulate the findings to suggest recommendations for future emergency department suicide risk assessment development. The four main thesis aims are outlined below.

1. Update the suicide risk and protective factor literature. This will be achieved by conducting two narrative systematic reviews of reviews. The reviews will explore factors that can feasibly be assessed in emergency healthcare settings that may increase the risk of suicide, suicidal behaviour, and suicidal ideation; and explore factors that may mitigate risk and act as protective factors of suicide, suicidal behaviour, and suicidal ideation. These will be addressed in Chapters 3 and 4 respectively.
2. To investigate current suicide risk assessment practice nationally, and for the purposes of this thesis, this will be across Scotland only (Chapter 5). This will

involve gathering survey data from every emergency department in Scotland, measuring the ways in which suicide risk is currently being assessed; whether each emergency department has a policy regarding risk assessment; and gaining clinician views on risk factors and confidence levels during risk assessment with the use of Likert scales. To the author's knowledge, this explicit investigation of suicide risk assessment practice is novel. However, by assessing findings of prior related research (Quinlivan et al., 2014; SAMH, 2012), it is hypothesised that there will be substantial variation in current suicide risk assessment practices across emergency departments in Scotland.

3. Explore in further depth, clinician views and experiences of suicide risk assessment in their practice (Chapter 6) using in-depth, semi-structured interviews. This will investigate, but not be limited to, clinicians' views of their current suicide risk assessment practice; their views of both formal methods of risk assessment and using clinical judgement within their practice; factors they deem most important when assessing risk; and their ideal methods of suicide risk assessment. This type of in-depth qualitative exploration is greatly under-researched within this field, though similar work has recently been undertaken with UK General Practitioners (GPs), exploring their views on suicide risk assessment with young people (Michail & Tait, 2016). However, there remains a dearth of research relating to emergency departments.
4. To triangulate the accumulated data collected for theoretical development and recommendations for developing clinical guidance for suicide risk assessment within emergency departments, and to develop an underpinning basis for future development of suicide risk assessment tools or measures (Chapter 7). The inclusion and synthesis of these data will allow for both empirically informed, and

clinician-centred suicide risk assessment guidance development. This tiered amalgamation approach of evidence using systematic reviews and quantitative and qualitative information of current practice, has previously been used in the development of successful risk assessments in the violence risk assessment literature (e.g., the PRISM assessment; Johnstone et al., 2008). Therefore, it is expected that this approach will be able to successfully produce clear recommendations and guidance for future development of emergency department suicide risk assessment tools and measures.

Chapter 2 will now outline the methodological underpinnings for the current thesis, at a broad whole-thesis level, and at an individual study design level.

CHAPTER TWO: Methodological Background, Design & Methods

2.1. Methodological Background

As addressed in the previous chapter, despite suicide being a widely acknowledged public health problem (WHO, 2015), and research indicating that around a quarter of those who die by suicide have attended an emergency department within three months prior to their death (ISD, 2014), very little is known about current suicide risk assessment practices in emergency departments across the UK. Suicide risk assessment has been highlighted as one of the most important features of managing a patient presenting with suicidal intent (Simon, 2011). Research suggests that suicide risk assessment tools that are used in emergency medicine cannot predict suicide and are not clinically useful (Bolton et al., 2012; SBU, 2015), and it is recommended that locally developed tools should be abandoned (Royal College of Psychiatrists, 2010). Therefore, to develop more clinically useful and feasible suicide risk assessments for use in emergency healthcare settings, further research is needed into current suicide risk assessment activities. This chapter will provide a broad discussion on theoretical framework approaches for developing complex clinical interventions, such as the development of tools and guidance. The chapter will conclude with an outline of a novel application of a theoretical underpinning, with decision science applied to suicide risk assessment, and the specific approach to achieve this will be described.

2.1.1. Suicide Risk Assessment Approaches with Decision Science

As discussed in Chapter 1, suicide risk assessment can be undertaken using the actuarial approach, which has largely been adopted by healthcare professionals (Quinlivan et al., 2014). However, research consistently finds that the actuarial approach to suicide risk assessment, and the use of actuarial tools cannot predict suicide (Cole-

King & Platt, 2017). This predictive linear approach (Dawes & Bernard, 1974) sits in contrast to naturalistic decision-making. Within the field of decision science, fast-and-frugal models have therefore been developed using a probabilistic framework model (Gigerenzer, 1993) to address this gap in the way interventions are involved in judgment and the way that individuals come to form judgments and make decisions. Fast-and-frugal models are simple process models that do not search through all the available information, do not integrate all relevant information, and which can lead to a decision being based on very few pieces of information (cues), or indeed even on only one cue (Gigerenzer & Todd, 1999).

Three basic processes are involved in fast-and-frugal decision making: the search rule; the stopping rule; and the heuristic principles for decision-making (Todd & Gigerenzer, 2000). The search rule searches for alternative choices when forming judgments, and for information to be used in evaluating these alternatives. The stopping rule specifies when and how the information search procedure should be stopped. The stopping rule must operate within the time limits imposed by the task environment, which is highly applicable to emergency department settings. With restrictive time available to assess a patient, vast searching of information and evaluating this information is not possible, and hence the clinician's naturalistic decision making process will impose a more restricted stopping rule, making their judgement and decision making faster and more frugal (i.e., using fewer cues) than could otherwise be the case. The heuristic principles for decision-making choose among decision alternatives that have either been presented by the task or generated by the decision-maker themselves, drawn from past experiences. These are computationally simple, requiring little combination or elaboration of the information obtained through search. This final principle is related to the heuristics and biases programme which was proposed by Tversky and Kahneman

(1974) and which was discussed in Chapter 1. In essence, under conditions of uncertainty, with little or no formal guidelines or processes, and when facing time limitations, it is sensible to hypothesise that clinicians carrying out suicide risk assessments in emergency departments would engage in fast-and-frugal decision making processes, relying on past experiences and heuristics (cognitive shortcuts or ‘gut feelings’) to inform their choices. To the author’s best knowledge, no studies have explicitly investigated this possibility, or indeed whether this naturalistic decision process has a positive or negative impact on clinical decision making in suicide risk assessment. Fast-and-frugal decision making has been explored within other areas of healthcare, however.

Within a healthcare context, Dhimi and Harries (2001) compared predictions for GP prescription judgements for a set of hypothetical patients using both a regression model of decision-making and a fast-and-frugal model. Although both models were found to be of use, the fast-and-frugal model was deemed easier to convey to GPs, and was argued to be more psychologically plausible and representative. Fast-and-frugal heuristics have recently been developed and applied into clinical decision-making assessment procedures. Jenny, Pachur, Williams, Becker, and Margraf (2013) fitted a fast-and-frugal decision tree to the Beck Depression Inventory and found that it performed favourably, concluding that these types of fast-and-frugal decision tree tools, which have received little attention in mental health so far may offer a competitive alternative to a complex weighted assessment model. This indicates that a move towards this type of decision-making design may be plausible for a suicide risk assessment tool in healthcare settings.

As discussed in Chapter 1, Structured Professional Judgment approaches have been incorporated into the development of suicide risk assessment tools (e.g., S-RAMM), and in violence risk assessment (e.g., HCR-20 and PRISM). Within the wider risk assessment

literature, the Structured Professional Judgment approach is widely acknowledged as the 'gold standard' (Graff & Dittan, 2010). Using this approach, a clinician composes their risk assessment using empirically informed headings as prompts, triangulating patient reported information with case history reports and reports from external individuals such as family members (Murray & Thomson, 2010). However, as previously discussed, though these assessments are comprehensive and thorough, they are time consuming (Fazel et al., 2012; Khadivi et al., 2008), and are certainly not feasible for use in emergency department settings. What is therefore required is a new approach that is still informed by tacit clinical knowledge. Moving towards developing suicide risk assessment tools which incorporate the support for naturalistic decision making and the need for quick assessments, exploring the possibility of using fast-and-frugal approaches to develop risk assessment measures, while still maintaining the rigour and clinical flexibility of the Structured Professional Judgement approach would appear sensible.

2.1.2. Risk Assessment Development

The Medical Research Council (MRC) (2008) provides framework guidelines on the development, evaluation, and implementation of complex interventions to improve health. The guidelines are divided into four stages: developing an intervention; piloting and feasibility assessment; evaluation; and implementation. The guidelines offer a systematic approach to developing interventions. The initial stage of the framework guidelines details the developing a complex intervention stage, the first phase of which is to identify the evidence base. This involves identifying the relevant and existing evidence base, by preferably conducting a systematic review. A systematic review can provide an exhaustive summary of current literature, and have been successfully utilised in

evidenced-based medicine by the Cochrane Collaboration for over 20 years (Smith, 2013).

A further phase of the development stage is the identification or development of appropriate theory. This can draw on existing evidence or theory available, or be developed using primary research. This identification or development of theory, allows for an intervention that is empirical and pragmatic. Moving beyond mere searches for theoretical bases within a single field within which an intervention is to be developed, Murray et al. (2016) proposed an adjusted methodological approach to complex intervention development, building upon that proposed by the MRC. Within this approach, the research, as per the MRC guidelines, conducted an extensive literature search which took the form of a scoping review, and which applied a broad search strategy across numerous applied academic research fields. This yielded recurrent themes which were utilised within the development of a theory-informed healthcare intervention, and one which was not limited by a lack of interdisciplinary perspectives. This follows the MRC (2008) systematic guidelines of developing complex interventions, by firstly identifying the evidence-base and developing theory. The current thesis will perform systematic literature reviews and has and will continue to consider suicide risk assessment within a broader context than has traditionally been the case; primarily drawing from health psychology, forensic risk assessment, and decision science literatures. This is the first piece of work which has explicitly drawn these three fields together to systematically investigate suicide risk assessment.

The discussed guidelines for intervention development stages can be applied to the development of risk assessment tools and measures, in the absence of systematic risk assessment development guidelines. Previously developed violence risk assessment tools

incorporating Structured Professional Judgement have been developed using a systematic approach. For example, the PRISM assessment (Johnstone & Cooke, 2008), which explores situational violence which may be mediated by the environmental setting, was developed using three steps. First, a systematic review of the literature on institutional violence was carried out. Cooke and Johnstone (2010) noted that although a systematic review provides systematic evidence about what might be relevant, it provides little or no information about ‘why’ or ‘how’; in this case, situational variables may influence violence. The second step involved in the development of the PRISM aimed to improve the understanding of these unanswered questions. This step involved collecting qualitative information from prisoners and prison staff, to clarify which situational variables were associated with institutional violence according to these more tacit and lived-experience accounts. The third step in the development of the PRISM was to amalgamate the information collected in the systematic review and qualitative study into a set of guidelines that were practically useful.

Research has substantiated that the PRISM is a successful assessment tool in assessing for risk (Johnstone & Cooke, 2010), and its clinically applied success is evidenced through its integration into the California State Hospital Violence Assessment and Treatment guidelines (Stahl et al., 2014). Based on the high success of the PRISM in achieving an empirically informed, clinically relevant, and clinically accepted approach to risk assessment, and the need for the development of suicide risk assessment tools which also align to these principles, the PRISM development strategy was deemed to be a suitable methodological approach to adapt and use within the current research.

The current research will therefore draw best practice from a range of theoretical and methodological perspectives, taking into account complex intervention development

guidelines (i.e., Murray et al., 2016; MRC, 2008) and the methods used by existing successful risk assessment tools elsewhere (e.g., Johnstone & Cooke, 2008). The aim of the current thesis is not to develop the tool itself, but to develop the underpinning evidence-base to develop preliminary guidance for suicide risk assessment. It would be out of the scope of a single thesis to develop the theoretical underpinnings of a tool, and the tool itself including piloting/evaluation. The current thesis therefore aligns to the first stage within the MRC (2008) complex interventions development framework.

2.2. Design

The current thesis will use a mixed method methodological triangulation approach (Bekhet & Zauszniewski, 2012) to primarily inform guidelines for assessing suicide risk, and as a secondary aim following on from this, potentially inform the future development of a fast-and-frugal approach to suicide risk assessment, as the thesis will combine both quantitative and qualitative data techniques (Boyd, 2000; Thurmond, 2001). Methodological triangulation is defined as the use of more than two methods in studying the same phenomenon under investigation (Olsen, 2004), and is primarily used to bring together different but complementary types of data (Morse, 1991). The use of this approach allows a direct comparison of quantitative and qualitative forms of evidence to corroborate findings (Plano-Clark, Huddleston-Casas, Churchill, Green, & Garrett, 2008).

There has been a marked increase in the proportion of studies using mixed methods in applied health psychology and health services research within recent years (O'Cathain, Murphy, & Nicholl, 2007). The use of this approach can be advantageous, as methodological triangulation has been found to be beneficial in providing confirmation of findings, and enhancing validity and rigour of a research study (Bekhet &

Zauszniewski, 2012; Heale & Forbes, 2013). It has also been suggested that triangulation of methods and collection of rich data in research provides a completeness that can contribute towards the comprehensiveness of a study (Boyd, 2001; Thurmond, 2001; Wisdom & Creswell, 2013). Rogers and Apel (2010) discuss the need for suicide research to utilise mixed method designs, and Wisdom and Creswell (2013) further suggest that mixed methods approaches can provide exploratory findings that can be used to develop psychometric instruments and further scale development. For this reason, as well as prior successful triangulating research in developing risk assessment tools (Cooke & Johnstone, 2010), a triangulation approach will be utilised within this thesis.

2.3. Methods

The thesis will involve four sequential stages, and the remainder of this chapter will describe the individual methods and approaches used for each of the core research components of the current thesis. The four stages will involve conducting: systematic reviews; a quantitative survey study; a qualitative interview study; and a triangulation of the previous three stages (Figure 2.1). Where possible, the Enhancing the QUALity and Transparency Of health Research (EQUATOR) (EQUATOR Network, 2017) standardised reporting guidelines will be followed. The EQUATOR guidelines are an international initiative that seeks to improve the reliability and value of published health research literature by promoting transparent and accurate reporting, and wider use of robust reporting guidelines. By utilising the EQUATOR guidelines within this thesis, this will improve the quality of the overall thesis. The methods used during each stage will be discussed in further depth within their corresponding chapters.

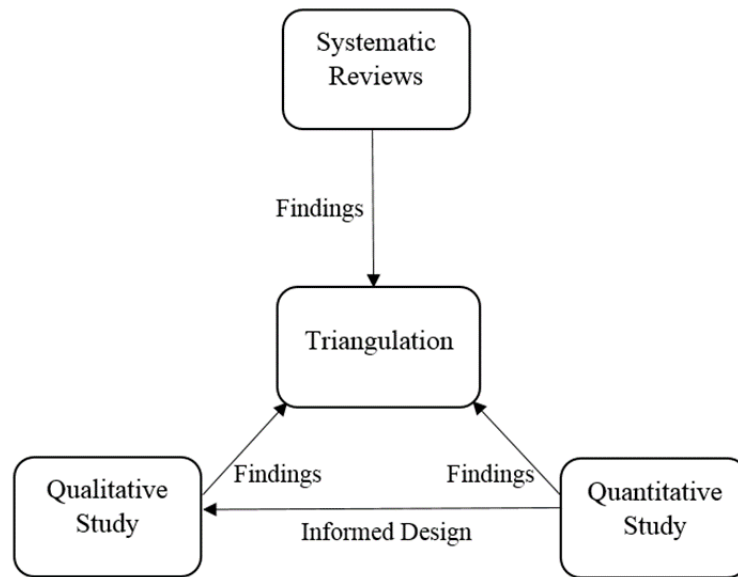


Figure 2.1. Diagrammatic Representation of the Studies to be Triangulated.

2.3.1. Systematic Reviews (Chapters 3 & 4)

To update the suicide risk and protective factor literature, two systematic reviews were conducted (Chapters 3 & 4). A prior, comprehensive review was conducted by McLean et al. (2008) exploring both risk and protective factors of suicide. However, given recent economic and societal changes (Barr, Taylor-Robinson, Scott-Samuel, McKee, & Stuckler, 2012; ONS, 2013), it was necessary to update this literature. This coincides with the methodology used in the development of the Structured Professional Judgement assessment tools (e.g., the PRISM; Cooke & Johnstone, 2010; Johnstone & Cooke, 2008). Moreover, the MRC (2008) recommends that during the initial stage of developing a complex intervention, a systematic review should be carried out. The systematic reviews carried out within the current thesis focused on factors that increase the risk of suicide, suicidal behaviour, and suicidal ideation, and explore factors that may mediate risk and act as protective factors of suicide, suicidal behaviour, and suicidal ideation.

To align with the healthcare settings that this thesis aimed to explore, the systematic reviews only explored factors that could feasibly be assessed in emergency healthcare settings. The reviews utilised a narrative synthesis due to heterogeneity of the included articles, and followed formalised guidance on conducting narrative syntheses (Popay et al., 2006). To ensure methodological rigor and quality, the reporting of the reviews followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher, Liberati, Tetzlaff, Altman & The PRISMA Group, 2009). Further detailed methods including database searches; inclusion criteria; quality appraisal; and data synthesis can be found in Chapters 3 and 4.

2.3.2. Quantitative Study (Chapter 5)

To investigate current suicide risk assessment practices in emergency departments across Scotland, a quantitative study was conducted. As the current thesis was undertaken at a university in Scotland, to use a Scotland-only sample seemed appropriate, given the differing health system structures and policy directives between Scotland and the rest of the UK. Prior to the commencement of this study, and the proceeding study (Chapter 6), ethical approval was awarded from both the Edinburgh Napier University Research Integrity Committee, and each National Health Service (NHS) Health Board in Scotland. In order to investigate current suicide risk assessment practices in emergency departments, a quantitative cross-sectional survey was posted to emergency departments across Scotland for clinicians who have previously assessed for the risk of suicide to complete. The survey measured how suicide risk is currently being assessed, whether each emergency department has a policy regarding risk assessment, whether staff are aware of it if one is present, and clinician views on risk factors and confidence levels

during risk assessment with the use of Likert scales. More detailed methods can be found in Chapter 5.

2.3.3. Qualitative Study (Chapter 6)

Based on the findings from the prior quantitative study (Chapter 5), the thesis conducted a qualitative study to explore in further depth clinicians' views and experiences of suicide risk assessment in their practice. This type of in-depth qualitative exploration is greatly under-researched, though similar work has been undertaken with UK GPs, exploring their views on suicide risk assessment with young people (Michail & Tait, 2016). However there is a paucity of research relating to emergency departments. In line with discussions by Curry, Nembhard and Bradley (2009), the use of a qualitative component in this thesis was to provide detailed perspectives of descriptions of processes and ensure a more comprehensive understanding of suicide risk assessment. Utilising qualitative interviews with staff members echoes the methodology undertaken during the development of Structured Professional Judgement tools, such as the PRISM (Johnstone & Cooke, 2008), and this bottom-up, clinician focused information is currently missing from the literature.

The interviews followed guidance by DiCicco-Bloom and Crabtree (2006), and explored clinicians' views of their current suicide risk assessment practice, their views of both formal methods of risk assessment and using clinical judgement within their practice; factors they deem most important when assessing risk, and their ideal methods of suicide risk assessment. Interviews were audio-recorded and transcribed verbatim. Data were analysed using inductive thematic analysis following Braun and Clarke's (2006) guidelines. Further details of the guidelines and the analytical process are included in Chapter 6. Thematic analysis is a suitable approach to use when a study aims to

understand current practice of any individual (Alhojailan, 2012). The reporting of this study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Tong, Sainsbury, & Craig, 2007) to ensure methodological rigor and quality. A more detailed method for this study can be found in Chapter 6.

2.3.4. Data Triangulation (Chapter 7)

Similar to the tiered amalgamation approach during the development of the PRISM risk assessment tool (Cooke & Johnstone, 2010; Johnstone & Cooke, 2008), this chapter triangulated the prior three stages to develop practical guidelines for clinicians to facilitate suicide risk assessment in emergency departments, and which will act as a basis for the future development of an empirically underpinned, clinically useful and feasible suicide risk assessment for use in emergency healthcare settings. The triangulation of findings from the previous stages utilised the ‘following-a-thread’ approach of triangulating data (Moran-Ellis, Alexander, Cronin, Fielding, & Thomas, 2006; O’Cathain et al., 2010). This method of triangulation involves initially analysing each component using their respective methods, the results of which will be presented in the previous chapters (Chapters 3-6). Themes, questions and important information was then selected from each of the components and is followed across the other components. This type of approach has previously been employed in health services research (O’Cathain et al., 2010). Using this approach, recommendations for future development of suicide risk assessment within emergency healthcare settings will be presented.

CHAPTER THREE: Risk Factors for Suicide Relevant to Emergency Healthcare Settings: A Systematic Review of post-2007 Reviews

3.1. Background

Despite recent findings indicating a slight decrease in the number of suicides in the UK (ONS, 2016; ScotPHO, 2016), the statistics available for suicide related deaths still demonstrates a need for research investigating causal factors underlying suicide and suicidal behaviours that may aid in the identification of individuals at risk. The current chapter will be the first of the two systematic reviews included in this thesis, and the current chapter will explore suicide risk factors. Common risk factors that are taken into account in healthcare settings include, having a mental health condition, misusing drugs or alcohol, and social factors such as unemployment, and social isolation (NHS Choices, 2015). Yoshimasu, Kiyohara, and Miyashita (2008) conducted a meta-analysis of suicide risk factors and found that the comorbidity of risk factors should be paid a maximum attention when assessing for suicide risk. This echoes the wider literature, which finds that often, suicidal behaviour involves not just one factor, but a combination of risk factors that together can increase the risk of suicide significantly (Christiansen, Larsen, Agerbo, Bilenberg, & Stenager, 2013; Swann et al., 2005).

McLean et al. (2008) conducted a rigorous systematic review to identify risk and protective factors related to suicide and suicidal behaviour. The research aimed to provide a high-quality review of societal and cultural factors associated with the increased incidence of suicide, and population subgroups that are at increased risk of suicidal behaviour. The review searched for only existing reviews (either systematic reviews or meta-analyses) of risk factors from 1996 to 2007. The search identified 23 reviews of risk factors that met the inclusion criteria of the review. The findings indicated a large number

of risk factors of suicide, including: mental illness; prior suicidal behaviour; health behaviours, such as substance misuse; physical health problems; genetic predisposition; unemployment. Furthermore, the review identified gaps in the risk factor literature which included being affected by aftermath of suicide or suicidal behaviour; bereavement; children, especially looked after children; HIV and AIDS; homelessness; being LGBT; isolation; the media; older people; those who have been physically or sexually abused; urban deprivation; and people with physical or learning disabilities.

McLean et al.'s (2008) review demonstrated that, although many risk factors for suicide have been identified and exist within the literature, some are either little researched, or have not been empirically assessed either at all or to an adequate extent. However, since 2008 there have been a number of societal changes. For example, an economic recession began in December 2007, which met the International Monetary Fund (IMF) criteria for a global recession by 2009 (IMF, 2009). By the end of 2011, around 2.7 million people in the UK were unemployed, equating to approximately 8.4% of the workforce (UK Commission for Employment and Skills, 2014). Barr et al. (2012) found evidence linking increases in suicides in England between 2008 and 2010 with the global recession. This indicates that economic changes since the McLean et al. (2008) review, may have impacted upon suicide risk factors and rates.

Furthermore, since McLean et al.'s (2008) review was published, there has also been technological changes in society which may affect suicide. The ONS (2013) recently found that the number of adults accessing the internet every day in the UK has more than doubled between 2006 and 2012 from 16 million to 33 million, with almost half of UK adults using social networking sites such as Facebook and Twitter. Internet use has also risen in younger populations, and research has found that cyberbullying is more strongly

related to suicidal ideation compared with traditional bullying (van Geel, Vedder, & Tanilon, 2014). Research is finding links between bullying and childhood trauma and suicidal ideation, and according to recent findings, these risk factors are being overlooked in emergency room suicide risk assessments (Alavi, Reshetukha, & Prost, 2015). Therefore, further research is needed to identify current risk factors associated with suicide, which may have emerged more prominently in recent years due to economic and social changes and may be able to assist health and social care professionals in identifying those individuals at risk of suicide.

Furthering understanding of current risk factors could assist healthcare staff, as research has found that staff in emergency departments can be negative or ambivalent toward suicidal individuals (Pompili et al., 2005). The research additionally notes that patients are subjected to stigmatisation and lack of empathy, which can decrease the quality of care, and further emphasises the need for protocols, guidelines and education for emergency staff. By updating and synthesising the literature on suicide risk factors relevant to emergency departments, this can contribute to a greater understanding of suicide, potentially reduce stigmatisation amongst healthcare staff, and develop healthcare training, protocols and risk assessment screening measures specific to these factors. Recently, the SBU (2015) conducted a systematic review examining evidence for the use of 13 suicide risk screening tools in assessing risk of future suicidal behaviour and not one provided evidence to support sufficient accuracy to predict future suicide. However, as discussed in the earlier chapters, clinical assessments of risk are not solely focused on prediction, but rather assessment and management of risk, ultimately to reduce the risk or remove it, and studies focusing purely on the predictive validity of risk assessment tools which were not designed with prediction as the focus (i.e., non-actuarial tools) must be considered with some scepticism. Thus, research identifying current and

emerging risk factors that are clinically relevant within the emergency department context may support the development of more effective screening assessments.

3.1.1. Aims & Objectives

The key objective of the current research is to provide a high-quality update of the existing literature post-publication of McLean et al.'s (2008) systematic review. Updating the literature post-publication of this particular review was chosen as the review utilised a robust quality assessment and it provided a review of reviews, which gives a breath of evidence in one single document (Smith, Devane, Begley & Clarke, 2011). Furthermore, it searched for biological, social and cultural factors which are relevant to this thesis. The review will explore risk factors related to suicide and suicidal behaviour that can be easily detected and feasibly assessed in UK emergency healthcare settings, as risk needs to be identified quickly and be clinically informative in these settings. To the author's knowledge, this is novel in nature, as no such systematic review has been conducted explicitly for these settings. The review also aims to address the gaps in the literature previously identified by McLean et al. (2008), with any new findings having the potential to be adopted into future suicide risk assessment development, training and practice, as research has found that some recently identified risk factors may be overlooked in emergency settings (Alavi et al., 2015). To achieve this, similar search terms, and exclusion and inclusion criteria as used by McLean et al. (2008) will be utilised in the current review. The current review is concerned only with suicide that involves suicidal intent; and will not include systematic reviews that explore self-harm when not associated with suicidal intent. Furthermore, McLean et al. (2008) investigated both risk and protective factors for suicide. However, this review will concentrate only on risk factors, as the proceeding chapter (Chapter 4) will explore protective factors. Finally, the current

review is also concerned with emergency department settings; and this is, to the author's best knowledge, unique in the literature.

3.2. Method

The methods and presentation of results followed the PRISMA statement (Moher et al., 2009). The current research used PRISMA items 6-13, 17-20 and the recommended study flow diagram. Items that were not included were outside the scope of the current systematic review. Therefore, items 14-16 and items 21-23 were not reported as they refer to the reporting of summary statistics and meta-analyses, which the current review did not conduct.

3.2.1. Database Searches

During the review, three health and social science databases (PsycINFO; CINAHL; Medline) were searched via EBSCOhost between January 1, 2007 and December 2014. These databases were chosen as they align to those used within the McLean et al. (2008) review and cover the research areas of psychology, life sciences, nursing, allied health, and healthcare, which are all applicable to suicide research. The search screening process is displayed in Figure 3.1. The search terms used were: suicid* AND risk factor* OR self-harm* OR attempt* OR relative risk OR attributable risk OR personality OR cogniti* OR risk cu*. A list of the databases used and the full search strategy are provided in Appendix 3A. The search was limited to systematic reviews and meta-analyses that were published in peer-reviewed journals in the English language. Further articles were sought using a hand-search of the reference lists of the quality assessed included papers.

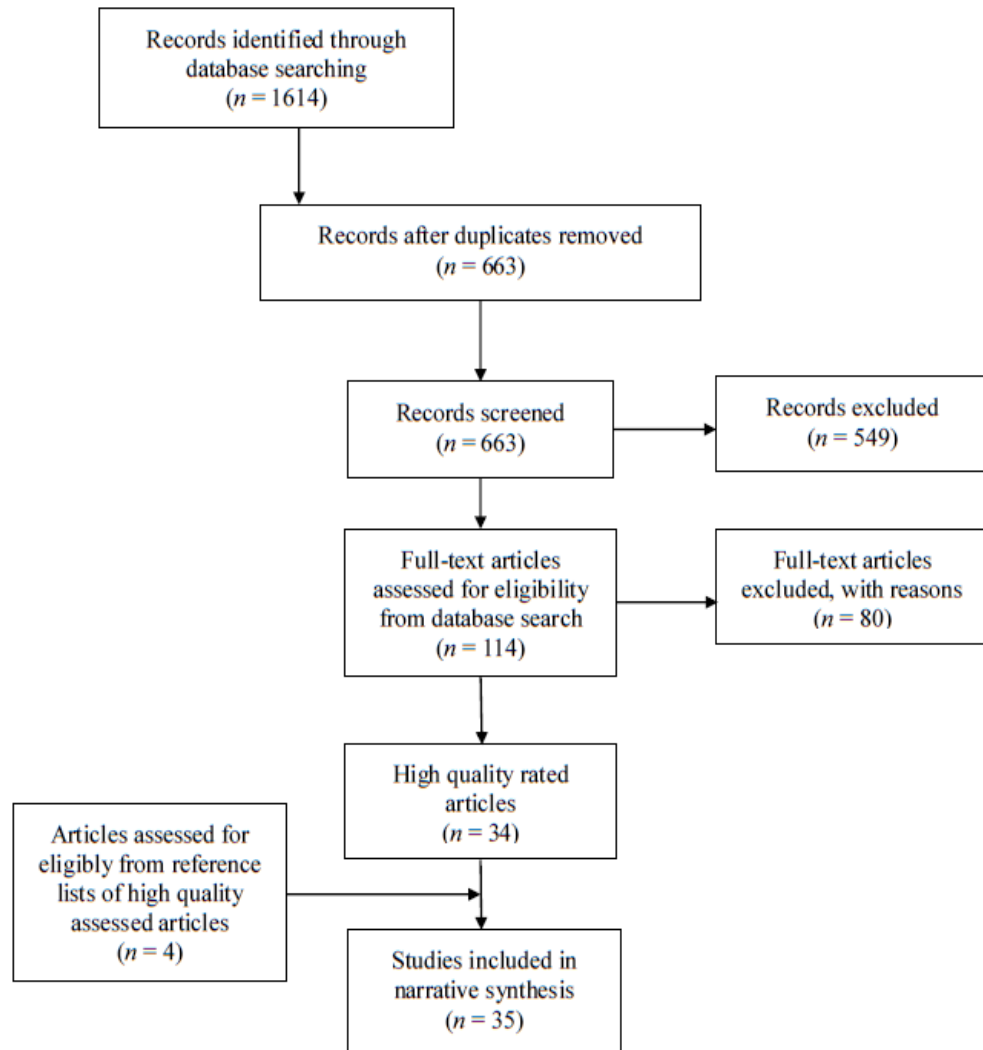


Figure 3.1. Flowchart of Suicide Risk Factor Included Reviews.

3.2.2. Inclusion & Exclusion Criteria

To identify the current risk factors for suicide, suicidal intent and behaviours that can feasibly be assessed in UK emergency healthcare settings, high-quality reviews (systematic reviews and meta-analyses) published in peer-reviewed journals in the English language, for all age groups were explored. Only reviews published from 2007 to 2014 were included in the search, as the McLean et al. (2008) review covered research prior to these dates. Reviews identified via the database searches were excluded using the following criteria:

- Risk factors which could not be easily and feasibly assessed in time-limited emergency healthcare settings, e.g., genetic findings relating to risk factors, such as gene or neurotransmitter abnormalities, which would require separate assessments or clinical testing
- Either irrelevant or with no application to healthcare settings in the UK e.g., research exploring indigenous populations and risk outside the developed world
- Risk factors for suicide in confined settings e.g., in prisons or care homes
- Suicidal behaviours such as self-harm, when not explicitly linked with suicide intent
- Assisted suicide or euthanasia
- Reviews of interventions for suicidal behaviour
- Non-systematic literature reviews and primary research studies
- Grey literature
- Those published in a language other than English

3.2.3. Screening and Data Extraction

Data were exported from each database and duplicates were identified and removed using EndNote Online (Thomson Reuters, 2015). Titles and abstracts were screened by the author (KMcC), then independently appraised for inclusion by the Director of Studies (JM). Data were extracted by the author (KMcC) for all papers. A second reviewer (JM) extracted data from a square root sample of papers ($n = 11$), which were selected at random. Following independent data extraction, the authors met to discuss similarities and differences across the data extraction. No substantive differences existed, and agreement was therefore high. Should there have been disagreements, a third reviewer would have been consulted to discuss the disagreement, and to independently extract data for comparison. This was not required.

3.2.4. Quality Appraisal

Articles that met the inclusion criteria were quality appraised for final inclusion by the author (KMcC), by assessing their adherence to the PRISMA checklist, as recent research has found that the quality of reporting and methodological quality of systematic reviews and meta-analysis have significantly increased with PRISMA endorsement (Panic, Leoncini, de Belvis, Ricciardi, & Boccia, 2013). The PRISMA checklist guides authors to report particular items in reviews and meta-analysis including but not limited to, databases with dates of coverage; a full search strategy; methods of data extraction; methods used for assessing risk of bias; number of studies screened, assessed for eligibility and included in the review; discussion of limitations at study and outcome level. Studies were categorised in the following way: high-quality, with all or most of the PRISMA checklist being adhered to; moderate quality, where approximately half of the checklist was adhered to; and low quality, with very few items on the PRISMA checklist being adhered to.

The author (KMcC) independently completed quality assessments for reviews meeting the inclusion criteria. A square root sample ($n = 11$) of the completed quality assessments were independently appraised by JM, as it recommended that a reasonable percentage of studies considered for inclusion should be evaluated independently (Moher et al., 2009; Schlosser, 2007). The inter-observer differences were minimal, with two or less items from the possible 18 in the checklist differing ($< 10\%$), indicating good reliability in the ratings across the two authors' appraisals, with no disagreements on classification of high, moderate, or low quality. Minor differences in individually rated PRISMA items were discussed and agreed upon. Should a difference had of occurred, a third assessor (ZC) would have been consulted to mediate. As before, this was not required.

3.2.5. Data Synthesis

A narrative synthesis of the included papers was undertaken. A narrative synthesis is a synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis that focus on a wide range of questions (Popay et al., 2006). The narrative synthesis approach was chosen for a number of reasons. This method replicates the methodology of the McLean et al. (2008) review, and the current review only searched for new evidence (post-2007) which was not included in the earlier work completed by McLean et al. (2008). In addition, substantial heterogeneity was anticipated due to the wide variation in type of researched risk factors of suicide and populations (based on the outcomes of the McLean et al. (2008) review), thus a meta-analysis was not chosen. It was also expected that the papers included in the current review would use differing methods for example, a mixture of meta-analyses and papers only using a qualitative narrative synthesis. Furthermore, a systematic review of reviews allows the creation of a summary of reviews in a single document (Smith et al., 2011), rather than re-synthesising papers which have already been synthesised.

The synthesis followed Popay et al.'s (2006) guidelines, and used groupings and clusters to organise studies into groups for analysis. The papers included in the current review were assessed for quality and data extraction by two researchers (KMCC & JM) and were synthesised into themes until overarching risk factors were reached (Figure 3.2). Where available, odd ratios (*OR*) and adjusted odds ratios (*aOR*), the ratio of odds that suicide or suicidal behaviour will occur to the odds of suicide or suicidal behaviour not occurring; relative risk (*RR*), the probability of suicide or suicidal behaviour occurring; and confidence intervals (*CI*) and effect sizes are reported.

3.2.6. Ethics Statement

All of the data used in this review were already in the public domain; thus, no ethical approval was required for the completion of this review.

3.3. Results

3.3.1. Study Selection

The search in PsycINFO generated 303 articles, CINAHL a further 255, and Medline found an additional 1056 articles. The combined search yielded a total of 1614 articles, of which 951 were removed after screening as they were duplicate articles. Of the remaining 663, 549 were excluded as they did not meet the inclusion criteria. A total of 114 articles were assessed for quality and final inclusion (Appendix 3B). Of these 114 papers, 34 (29.8%) met the high-quality inclusion criteria. An additional four studies were located through hand-searching the reference lists of the 34 high-quality included reviews. These were assessed for quality, and one article met the final high-quality inclusion, thus a total of 35 articles were included in the current review. A full list of quality assessed included and excluded reviews can be found in Appendix 3C and 3D respectively. Of the final 35 included reviews, 22 provided a meta-analysis, and 13 were systematic reviews employing a narrative synthesis.

3.3.2. Quality

Of the total sample of papers that met the inclusion criteria ($n = 118$), $n = 12$ were found to be of poor quality, with little adherence to PRISMA guidelines; $n = 71$ found to be of moderate quality, adhering somewhat to PRISMA guidelines and the remaining $n = 35$ were judged to be of very high-quality, strictly adhering to PRISMA guidelines, and were included in the review.

Of the 83 reviews that were excluded from the current review due to their quality being rated as either poor or moderate quality, 50 were exploring topics that were included in the current review as the topic either had single or multiple reviews which were included. Remaining topics that were excluded from the review due to their quality assessment are as follows: Physical Health topics including cancer, epilepsy, eating behaviors, old age, HIV, pregnancy, multiple sclerosis, dialysis treatment, and irritable bowel syndrome. Mental Health topics included, perfectionism, fetal alcohol syndrome, autism spectrum disorder, and rumination. Reviews relating to Family included family structure and being a twin. Finally, Life Events such as separation and being recently released from prison were also not included in the review due to their quality assessment.

3.3.3. Synthesis of Evidence

This section will present the findings of the narrative synthesis. The summarised suicide risk factor results have been divided into appropriate categories (Table 3.1). The review identified three overarching themes (Health Problem Risk Factors; Biopsychosocial Risk Factors; Environmental Factors), and each theme contains relevant subthemes. Figure 3.2 displays a diagram representing the themes and subthemes. Some studies may appear more than once in the results section, as they include data of risk factors of suicide that are relevant to multiple themes or subthemes. A complete table of included studies and their respective findings can be found in Appendix 3E.

Table 3.1
Identified Suicide Risk Factors

Suicide Risk Factors	Number of Studies Identified
Health Problem Risk Factors	
<i>Mental Ill Health Risk Factors</i>	
Depression	1
Mood Disorders	4
Anxiety Disorder	1
PTSD	1
<i>Associations of Mental Ill Health</i>	
Depression Medication	2
Discharge from Psychiatric Hospital	1
Sleep Disturbances in Psychiatric Disorders	1
<i>Self-Harm</i>	2
<i>Physical Health Risk Factors</i>	
TBI	1
DM-1	1
<i>Health Behaviour Risk Factors</i>	
Smoking	1
Substance Misuse	4
Biopsychosocial Risk Factors	
<i>Parental Suicide</i>	1
<i>Abuse</i>	
Childhood Maltreatment	6
Intimate Partner Violence	1
Sexual Abuse	1
Bullying	2
<i>Internet Use</i>	1
<i>Sexuality</i>	2
<i>Employment</i>	
Unemployment	2
Occupation	3
Environmental Factors	
<i>Access to Suicide Methods</i>	1

Note. Some reviews were applicable under more than one category, and so the numbers when totaled in the right hand column will not equal the number of reviews included within the narrative synthesis.

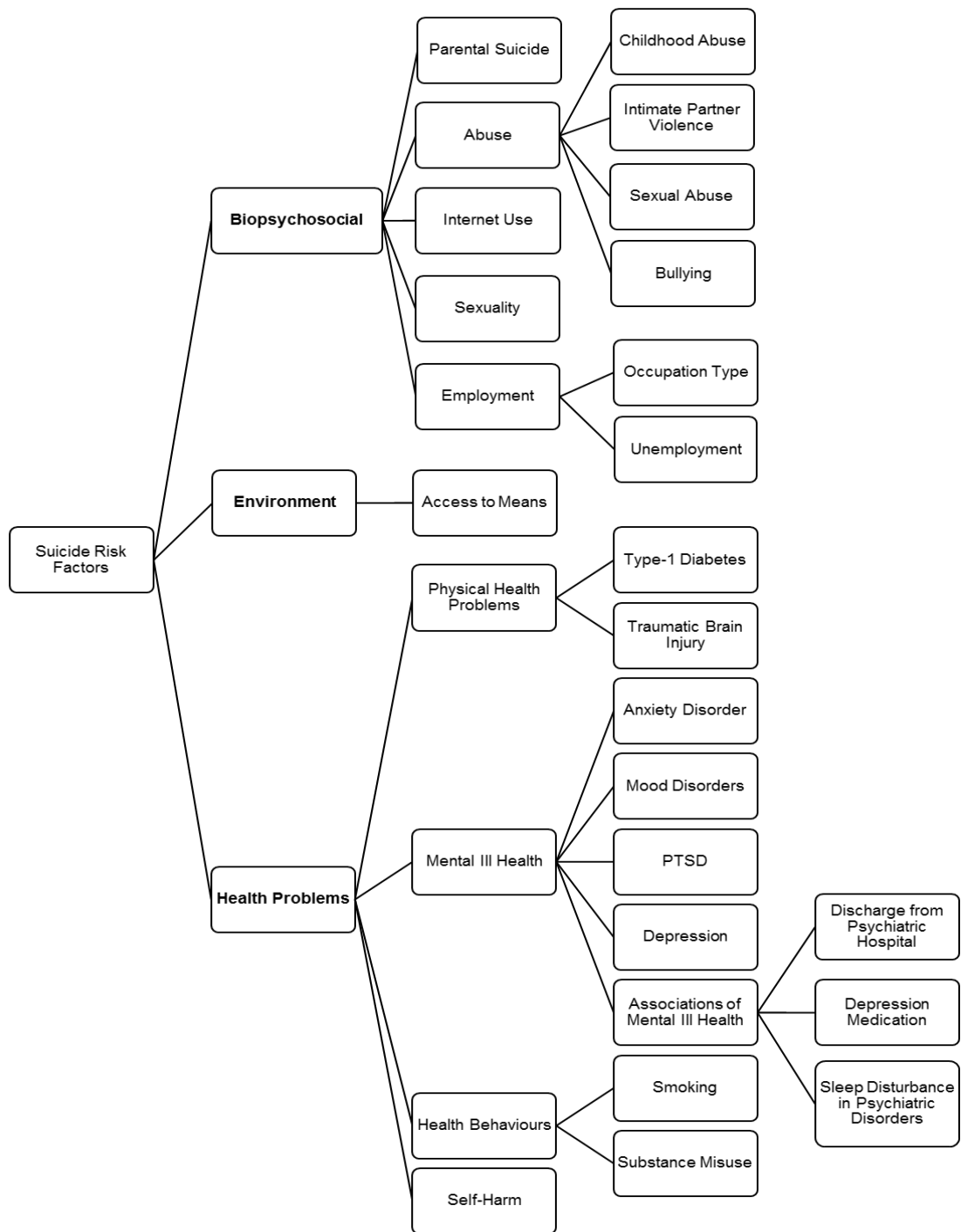


Figure 3.2. Synthesised Risk Factor Themes and Sub-themes

Health Problem Risk Factors

This overarching theme relating to health problems and suicide risk contains a total of four themes (Mental Ill Health; Self-Harm; Physical Health Problems; Health Behaviour), and includes 20 reviews. Findings of the themes and their respective sub-themes are described below.

Mental Ill Health Risk Factors.

This theme is composed of risk factors relating to mental ill health. One review identified risk factors relating to depression, four relating to mood disorders, one to anxiety disorder, and one to post-traumatic stress disorder (PTSD). Each of these sub-themes are discussed below.

Depression.

Hawton, i Comabella, Haw, and Saunders (2013) explored suicide risk and depression across 28 studies which included 200,000 individuals. Comparing individuals with depression who died by suicide to those who did not, suicide risk was greater in males (*OR* 1.76, 95% *CI* 1.08-2.86), those with a family history of mental disorder (*OR* 1.41, *CI* 1.0-1.97), and those with a history of suicide attempts or self-harm (*OR* 4.84, 95% *CI* 3.26-7.20). Having more severe depressive psychopathology (*OR* 2.20, 95% *CI* 1.05-4.60), and feelings of hopelessness (*OR* 2.20, 95% *CI* 1.49-3.23) were associated with risk. Symptoms of anxiety (*OR* 1.59, 95% *CI* 1.03-2.45) and Axis II disorder (*OR* 4.95, 95% *CI* 1.99-12.33) was also associated with risk. Current substance misuse (*OR* 2.17, 95% *CI* 1.77-2.66), including alcohol (*OR* 2.47, 95% *CI* 1.40-4.36) and drug use (*OR* 2.66, 95% *CI* 1.37-5.20) increased suicide risk.

Mood Disorders.

Palmier-Claus, Taylor, Varese and Pratt (2012) conducted a meta-analysis of 20 studies with a mixture of both clinical, non-clinical and general populations and found a significant association between mood instability and increased suicide risk, with a summary effect size of $z = 0.35$, (95% *CI*, 0.26-0.44; $p < 0.001$). Pompili et al. (2013a) found that suicide risk among people with bipolar disorder was 20-30 times greater

compared to the general population. Furthermore, Yoshimasu et al. (2008) conducted a meta-analysis based on psychological autopsy studies with a case-control design, and found that mood disorders were also strongly associated with suicidal risk (*OR* 13.42, 95% *CI* 8.05–22.37). Richard-Devantoy, Berlim and Jollant (2014) conducted a meta-analysis on the findings of 25 studies exploring neuropsychological tests (Iowa Gambling Task; Stroop test; trail making test part B; Wisconsin card sorting test; category and semantic verbal fluencies, and continuous performance test) in with those with mood disorders (unipolar; bipolar). Those who had attempted suicide had significantly lower performance than healthy controls on all tasks, all with moderate to high effect sizes.

Anxiety Disorder.

Kanwar et al. (2013) analysed 42 studies and found patients with anxiety, compared to patients without, were more likely to have suicidal ideations (*OR* 2.89, 95% *CI* 2.09-4.00), with panic disorder having highest odds (*OR* 4.39, 95% *CI* 2.38-8.10). Patients with anxiety were more likely to attempt suicide (*OR* 2.47, 95% *CI* 1.96-3.10), with panic disorder again having highest odds (*OR* 3.96, 95% *CI* 2.13-7.35). Those with anxiety were more likely have any suicidal activities (*OR* 2.85, 95% *CI* 2.35, 3.46) or complete suicide (*OR* 3.34, 95% *CI* 2.13-5.25) than those without. There were no differences between sexes. Associations of anxiety disorders with suicidal ideation (*OR* 3.08, 95% *CI* 1.94-4.90), and any suicidal activities in children (*OR* 2.82, 95% *CI* 1.92-4.14) were also found.

Post-Traumatic Stress Disorder.

Pompili et al. (2013b) synthesised 18 studies of suicide risk in veterans with PTSD which included a mixture of designs for example, comparing veterans with PTSD, to veterans without; comparing military personnel who served in war to those who did not;

and exploring the severity of PTSD in veterans and suicide attempts. The results found PTSD was associated with an increased risk of suicidal ideation, attempts and completed suicide in veterans.

Associations of Mental Ill Health.

This sub-theme of mental ill-health comprised of four reviews, two investigating depression medication, one exploring discharge from psychiatric hospital, and a further review investigating sleep disturbances in psychiatric disorders.

Depression Medication.

Barbui, Esposito, and Cipriani (2009) conducted a meta-analysis of eight studies that compared patients with depression who received selective serotonin reuptake inhibitors (SSRIs) to patients with depression who did not. SSRIs were found to significantly increase the risk of completed or attempted suicide in adolescents (*OR* 1.92, 95% *CI* 1.51-2.44). However SSRIs were found to significantly decrease risk in adults (*OR* 0.57, 95% *CI* 0.47-0.70), and among those aged 65 and over, SSRIs had a significant protective effect (*OR* 0.46, 95% *CI* 0.27-0.79). Bridge et al. (2007) conducted a meta-analysis of 27 trials exploring suicidal behaviour in paediatric antidepressant treatment. Pooled absolute rates of suicidal ideation and attempts in patients with major depressive disorder (MDD) was 3% in antidepressant participants, and 2% in placebo groups. The pooled risk difference was 1% (95% *CI*, -0.1% to 2%, $p = 0.08$). Pooled absolute rates of suicidal ideation and attempts in patients with obsessive compulsive disorder (OCD) was 1% in SSRI-treated participants, and 0.3% in placebo groups. The pooled risk difference was 0.5% (95% *CI*, -1% to 2%, $p = 0.57$). Pooled absolute rates of ideation or attempt in non-OCD anxiety disorders were 1% in antidepressant participants, and 0.2% in placebo groups, and the pooled risk difference was 0.7% (95% *CI*, -0.4% to 2%, $p =$

0.21). These results found an increased risk difference of suicidal ideation and attempts across all trials, though pooled risk differences were not significant and there were no completed suicides.

Discharge from Psychiatric Hospital.

Large et al. (2011) completed a meta-analysis of 13 studies and found that a history of self-harm or a suicide attempt (*OR* 3.15, 95% *CI* 2.28-4.33) and depressive symptoms (*OR* 2.70, 95% *CI* 1.63-4.48) were moderately associated with post-discharge suicide within one year. Being male (*OR* 1.58, 95% *CI* 1.16-2.16); experiencing recent social difficulties (*OR* 2.23, 95% *CI* 1.40-3.53); having a diagnosis of MDD (*OR* 1.91, 95% *CI* 1.46-2.51); the presence of suicidal ideas (*OR* 2.47, 95% *CI* 1.76-3.47); or an unplanned discharge (*OR* 2.44, 95% *CI* 1.71-3.47) were significantly associated with post-discharge suicide, albeit weakly. Patients with less contact with services post-discharge, were significantly less likely to complete suicide (*OR* 0.69, 95% *CI* 0.51-0.94).

Sleep Disturbances in Psychiatric Disorders.

Malik et al. (2014) compared patients with psychiatric diagnoses (depression; PTSD; panic disorder; schizophrenia; and anxiety) and co-morbid sleep disturbances, to patients without sleep disturbances across 19 studies. Patients with co-morbid sleep disturbances were more likely to report suicidal behaviours (*OR* 1.99, 95% *CI* 1.72-2.30), with significant associations between suicidal behaviours and sleep disturbance in depression (*OR* 3.05, 95% *CI* 2.07-4.48), PTSD (*OR* 2.56, 95% *CI* 1.91-3.43), panic disorders (*OR* 3.22, 95% *CI* 1.09-9.45), and schizophrenia (*OR* 12.66, 95% *CI* 1.40-114.44). Parasomnia had the greatest increased risk of suicidal behaviours (*OR* 4.69, 95% *CI* 2.58-8.51), while sleep-related breathing disorder had the lowest (*OR* 2.56, 95% *CI* 1.91-3.43). Results for hypersomnia were not significant.

Self-Harm.

Self-harm was classified as its own theme, and included two reviews. Carroll, Metcalfe and Gunnell (2014) explored 177 studies of rates of fatal self-harm amongst those who presented to healthcare services. Suicide risk in the 12 months after an index attempt was 1.6% (95% CI 1.2-2.4), 3.9% (95% CI 3.2-4.8) after 5 years, and 4.2% (95% CI 3.1-5.6) at 10 years. One year fatal repetition rates estimates for males was 2.7% (95% CI 1.8-4.0%) and 1.2% (95% CI 0.7-1.9) for females. Cohorts with average age above the median had an estimated one year repetition rate of 2.4% (95% CI 1.9-2.9) compared to 1.1% (95% CI 0.75-1.5) in those below. Cohorts with above the median proportions of patients with self-poisoning, the year fatal repetition rate was 1.1% (95% CI 0.9-1.4%) compared to 2.0% (95% CI 1.2-3.2) in those with less self-poisoning. Yoshimasu et al. (2008) found that across 11 psychological autopsy studies with a case-control design, that deliberate self-harm was very strongly associated with suicidal risk (*OR* 16.33, 95% CI 7.51–35.52).

Physical Health Risk Factors.

Two reviews were included in this theme, exploring traumatic brain injury (TBI) and Type 1 Diabetes Mellitus (DM-1) with suicide risk.

Traumatic Brain Injury.

Bahraini, Simpson, Brenner, Hoffberg, and Schneider (2013) explored suicidal ideation and behaviours after TBI. Three of the five studies supported an increased risk of death by suicide. Two studies found that 7-27.3% of veterans with TBI attempted suicide. Overall, findings support an increased risk of suicide among TBI survivors.

Type 1 Diabetes Mellitus.

Pompili et al. (2014a) reviewed 20 studies investigating DM-1 and suicidal behaviour across all ages. Results found patients with DM-1 have a higher suicide risk than the general population. Most studies found an increase in suicide and suicidal behaviours in adults with DM-1. One study found that suicidal behaviour was higher in individuals with DM-1 compared with Type 2 diabetes. However, research with adolescents was less clear. Finally, two out of three studies found that children with DM-1 had a higher than expected rate of suicide or suicidal behaviours.

Health Behaviour Risk Factors.

A total of five reviews were included in this theme. One review explored smoking and suicide risk, the remaining four examined substance misuse.

Smoking.

Li et al. (2012) studied cigarette use and suicide risk across 15 studies and found an increased risk of completed suicide for former smokers compared with never smokers (RR 1.28, 95% CI 1.00-1.64). There was an increased risk of suicide for current smokers compared with never smokers (RR 1.81, 95% CI 1.50-2.19). An increment of 10 cigarettes per day was significantly associated with a 24% increased risk of suicide for current smokers (RR 1.23, 95% CI 1.18-1.27). The association between smoking and suicide was weaker for studies adjusting for alcohol consumption (RR 1.65, 95% CI 1.25-2.18), and mental illness (RR 1.40, 95% CI 1.08-1.81). Compared with never smokers, current smokers have an 81% increased risk of completed suicide.

Substance Misuse.

Calabria, Degenhardt, Hall and Lynskey (2010) found that in three out of four studies investigating cannabis use, there was a significantly increased risk of suicide, attempt, and ideation associated with early onset, use and frequency of cannabis use. However, one study found that cannabis use was not a risk factor for suicide attempts. Marshall and Werb (2010) found that five out of six studies showed a link between either completed suicide, ideation or attempts and methamphetamine use. Those who reported ever using methamphetamine were more likely to report attempting suicide. Suicide attempts were more common among those diagnosed with methamphetamine induced psychosis. Also, a high prevalence of methamphetamine (9%) was observed in toxicological samples of suicide cases. However, one study found that although self-reported life-time history of methamphetamine use was associated with suicidal ideation, it was not associated with attempts. Pompili et al. (2012) found that alcohol misuse was significantly associated with suicidal attitudes. Early adolescent alcohol use onset was significantly associated with suicidality across gender, and several studies showed an association between substance use disorders and suicidal risk. Suicide attempts were found to be common in adolescents with substance use disorders, and substance use is common in those seeking treatment for suicidal behaviour. Yoshimasu et al. (2008) conducted a meta-analysis of 14 studies and found that substance-related disorders were strongly associated with suicidal risk (*OR* 5.24, 95% *CI* 3.30–8.31), and suicide was stronger in women (*OR* 8.34, 95% *CI* 2.18-31.82) than men (*OR* 3.87, 95% *CI* 1.85–8.13).

Biopsychosocial Risk Factors

The overarching biopsychosocial theme comprised of 21 reviews across five sub-themes (Parental Suicide; Abuse; Internet Use; Sexuality; Employment) and included,

one parental suicide review, six childhood maltreatment reviews, one intimate partner violence review, one review of sexual abuse, two reviews of bullying, two reviews of internet use, two reviews of sexuality, and six reviews of employment.

Parental Suicide.

Geulayov, Gunnell, Holmen and Metcalfe (2012) conducted a meta-analysis of 14 studies investigating parental association of fatal and non-fatal suicidal behaviour with offspring suicidal behaviour. Compared with offspring of two living parents, children who lost a parent to suicide were at greater risk of suicide (*aOR* 1.94, 95% CI 1.54-2.45); and attempts (*aOR* 1.95, 95% CI 1.48-2.57). Compared with offspring who lost a parent to a cause other than suicide, offspring of suicide descendants were at a higher risk of suicide (*OR* 1.91, 95% CI 1.56-2.10); and suicide attempts (*OR* 1.73, 95% CI 1.63-1.83). Furthermore, offspring whose parents attempted suicide were also more likely to die by suicide (*OR* 3.40, 95% CI 2.82-4.10), and attempt suicide (*OR* 3.74, 95% CI 3.54-3.95). The evidence was mixed for maternal compared with paternal suicidal behaviours, and for male and female offspring. One study reported that offspring age at time of parental death by suicide may have an effect, with child to adolescents (0-17years) being three times more likely to die by suicide compared with offspring of two living parents, with no increase in risk if the offspring were 18-25 years at the time of parental suicide.

Abuse.

This theme is made up of reviews relating to abuse and suicide risk, and contains four subthemes (Childhood Maltreatment; Intimate Partner Violence; Sexual Abuse; Bullying).

Childhood Maltreatment.

Devries et al. (2014) reviewed nine studies exploring whether exposure to childhood sexual abuse is associated with suicidal behaviour. The results found an overall pooled estimate for an association between exposure and suicidal behaviour (*OR* 2.43, 95% *CI* 1.94-3.05), with all but one being in the direction of increased risk. There was no significant difference between sexes. Maniglio (2011) found a significant association between child sexual abuse and suicidal behaviour or ideation, with the magnitude of the relationship ranging from small to medium. Chen et al. (2010) conducted a meta-analysis of 15 longitudinal observational studies that compared individuals who had a history of sexual abuse with a control group. There was a significant association between a history of sexual abuse and suicide attempts (*OR* 4.14, 95% *CI* 2.98-5.76). However, of the 15 studies, one explored adult sexual abuse. Norman et al. (2012) included 124 studies in a meta-analysis exploring child abuse (physical, emotional and neglect) and suicidal behaviour. Physically abused (*OR* 3.00, 95% *CI* 2.07–4.33), emotionally abused (*OR* 3.08; 95% *CI* 2.42–3.93), and neglected (*OR* 1.85, 95% *CI* 1.25–2.73) individuals had a significantly increased risk of suicidal behaviour compared with non-abused individuals. Results also found an increased risk of suicide attempts (physical abuse (*OR* 3.40, 95% *CI* 2.17–5.32), emotional abuse (*OR* 3.37, 95% *CI* 2.44–4.67), and neglect (*OR* 1.95, 95% *CI* 1.13–3.37)).

Fry, McCoy and Swales (2012) found that maltreated children (either physically, emotionally, sexually, or in combination) have an increased risk of suicide ideation and attempts, compared with children who have never experienced maltreatment, with sexual or physical abuse, having a median fourfold increased risk, based on 16 studies. The results found a significantly increased risk of ideation associated with maltreatment with

ORs and *aORs* ranging from 1.06 to 8.52. Furthermore, maltreatment was found to significantly increase the risk of suicide attempts with *ORs* and *aORs* ranging from 2.98 to 8.47. Weich, Patterson, Shaw and Stewart-Brown (2009) identified five studies and found that both physical abuse and maternal psychological unavailability before age five predicted suicidal ideation and attempts later in life.

Intimate Partner Violence (IPV).

Devries et al. (2013) explored IPV and suicide attempts across three studies. All showed positive relationships of IPV and attempts in women, two of which were significant (*OR* 3.2, 95% CI 0.97-103.59; *OR* 7.97, 95% CI 1.75-36.37; Beta = 0.12, 95% CI 0.02-0.22). However, two studies explored IPV on men and suicidal behaviours, and found no significant relationships.

Sexual Abuse.

A meta-analysis conducted by Chen et al. (2010) included 15 studies exploring sexual abuse in children ($n = 14$) and adulthood ($n = 1$) and suicide attempts. Results found a significant association between a history of sexual abuse, in both childhood and adulthood, with suicide attempts (*OR* 4.14, 95% CI 2.98-5.76).

Bullying.

van Geel et al. (2014) conducted a meta-analysis of 36 studies comparing victimised children with children who had not been victimised and found a significant relationship between peer victimization and suicidal ideation (*OR* 2.23, 95% CI 2.10-2.37), and attempts (*OR* 2.55, 95% CI 1.95-3.34). Cyberbullying, was more strongly related to ideation (*OR* 3.12, 95% CI 2.40-4.05) than traditional bullying (*OR* 2.16, 95% CI 2.05-2.28). Due to the small number of studies, subgroup analyses for attempts could not be

performed. Daine et al. (2013) also found that cyberbullying appeared to increase rates of attempted suicide for both victims and perpetrators, with rates increasing 1.9 and 1.5 times respectively.

Internet Use.

Daine et al. (2013) reviewed internet use and suicide in young people and found general internet use to be a source of exposure to suicide, with 59% stating that they had learned about suicide online. Discussion forum use was significantly associated with increases in suicidal ideation, as was searching online for information about suicide. Furthermore, 18% stated that finding a suicidal partner had relevance to them. In one study of adolescents, increased levels of internet addiction were related to increased ideation. One study found that cyberbullying appeared to increase rates of attempted suicide for victims and perpetrators by 1.9 and 1.5 times respectively. van Geel et al. (2014) included three studies in a meta-analysis and found cyberbullying to be more strongly related to suicidal ideation (*OR* 3.12, 95% *CI* 2.40-4.05) than traditional bullying (*OR* 2.16, 95% *CI* 2.05-2.28).

Sexuality Risk Factors.

Two reviews were included in this Biopsychosocial sub-theme. A meta-analysis of 25 studies of suicidal behaviour in lesbian, gay and bisexual (LGB) individuals found an increased risk in all LGB groups compared to heterosexuals (King et al., 2008). Attributable risk ranged from 0.03-0.25 and was higher in men than women. Women demonstrated a 1.82 times increased risk of lifetime suicide attempts in lesbians compared to bisexuals. Risk ratios for 12 month prevalence of suicide attempts ranged from 1.96 to 2.76 for both sexes. Results found lifetime suicidal ideation risk ratios of 2.04 for both sexes, and a 12 month prevalence of suicidal ideation risk ratio of 1.71 in both sexes.

Pompili et al. (2014b) reviewed bisexuality and suicide, and 13 out of 15 studies found that bisexuals were more likely than heterosexuals to report prior suicidal behaviour. However, two studies reported no significant differences. Evidence for differences between bisexuals and homosexuals was mixed.

Employment.

This theme contained six reviews across two sub-themes relating to both unemployment and occupation and suicide risk.

Unemployment.

Milner, Page and LaMontagne (2013a) conducted a meta-analysis and found that the pooled relative risk of suicide in long term unemployed (average 7.8 years) compared to those currently employed was 1.70 (95% CI 1.22-2.18). Pooled relative risk less than five years unemployed was 2.50 (95% CI 1.83-3.17) compared to those currently employed. Relative risk in studies with follow up periods between 12 and 16 years was 1.21 (95% CI 1.10-1.33) compared with those currently employed. Milner, Page and LaMontagne (2014) found that the effect of unemployment was associated with a significantly higher relative risk of suicide (RR 1.58, 95% CI 1.33-1.83). After controlling for mental health problems, relative risk was reduced by approximately 37%, but remained significant (RR 1.15, 95% CI 1.00-1.30).

Occupation.

Milner, Spittal, Pirkis, and LaMontagne (2013) found the highest suicide risk comprised of 'elementary' occupations such as cleaners (RR 1.84, 95% CI 1.46-2.33). The International Standard Classification of Occupations (ISCO) (version 2008) category 8 group, which represents machine operators had high risk (RR 1.78, 95% CI 1.22-2.60).

There was increased risk among the ISCO category 5 (RR 1.52, 95% CI 1.28-1.80), which represents services such as police, and ISCO category 6 (RR 1.64, 95% CI 1.19-2.28) for example skilled agricultural workers. The lowest risk was the highest skill-level group of managers (ISCO category 1, RR 0.68, 95% CI 0.50-0.93) and clerical support workers (ISCO category 4, RR 0.77, 95% CI 0.64-0.92). There were significant differences across skill level, with the lowest and second lowest skilled professions being at increased risk. Platt, Hawton, Simkin and Mellanby (2010) found seven of eleven studies showed that veterinary surgeon suicides were elevated compared to the general population significantly, with veterinary surgeons in the UK being at least three times as likely to die from suicide compared with the general population. Pompili et al. (2013b) reviewed suicide risk and PTSD in veterans and found higher risk for many years after returning home, and exposure to violent episodes of war increases the rate of suicidal thoughts and attempts. Furthermore, Bahraini et al. (2013) found between 7 to 27.3% of veterans attempted suicide after TBI.

Environmental Factors

The environmental factors theme included one paper which reviewed access to suicide methods and suicide risk.

Access to Suicide Methods.

Anglemyer, Horvath, and Rutherford (2014) conducted a meta-analysis of 14 studies assessing firearm accessibility and suicide. The pooled *OR* was 3.24 (95% CI 2.41-4.40). All but one study found significantly higher odds of suicide among those with firearm access than those who did not have access, with *ORs* ranging from 1.38 to 10.38. Tests for interaction between subgroups (sex; age; year of publication; location of death; risk of bias) were not significant.

3.4. Discussion

The current systematic review of 35 high-quality reviews updated and synthesised the literature of suicide risk factors that can feasibly be identified and assessed in emergency healthcare settings. Consistent with prior risk factor research (e.g., Harris & Barraclough, 1997; McLean et al., 2008), mental ill health was found to be a risk factor for suicide. This review found increased risk in particular individuals with depression (Hawton et al., 2013). For example, in those with depression, the risk of suicide is increased for males; those with family history of mental disorder; those with a history of attempts or self-harm; those with more severe depressive psychopathology, hopelessness, anxiety or Axis II disorder; and current substance misuse. This could aid healthcare staff in the identification of risk of suicide in individuals with depression. However, a large number of those studied in this particular review were patients in psychiatric care, thus the findings may not be generalisable to those with depression living in the community. Depression medication was identified as a suicide risk factor in adolescents (Barbui et al., 2009; Bridge et al., 2007). Although, the pooled risk differences were not significant. The findings imply that children and adolescents should be carefully monitored for suicide risk during treatment with antidepressants.

Discharge from psychiatric hospital was also found to be a risk factor for suicide in some groups. The current review included a study conducted by Large et al. (2011) that found that a history of self-harm, a suicide attempt, and depressive symptoms were moderately associated with post-discharge suicide when discharged from a psychiatric hospital. This indicates that these groups should be further assessed for suicide risk prior to and post-discharge, and adequate risk management and intervention planning ought to be in place prior to discharge to ensure continuing of care and reduce risk. NICE (2017)

guidelines recommended patient follow-up should be conducted within 48 hours where a suicide risk is identified, however a recent report released by Mind (2017) found that at least one in ten people in England are not being followed-up within seven days. This highlights a need for better provision of on-going care.

The current review also found research to suggest that one in 25 patients presenting to hospital for self-harm will kill themselves in the next five years (Carroll et al., 2014). However, it was difficult to differentiate between individuals who display self-injurious behaviour and those who are doing so with suicidal intent. Muehlenkamp (2005) notes that the field of psychology may benefit from using the term deliberate self-injury syndrome as a distinct disorder, which is described as self-injurious behaviour without suicidal intent. Furthermore, the review does not take into account those individuals who self-harm and attempt suicide but who do not present to hospital. Future research should aim to distinguish between those who self-harm and attempt suicide, and those who self-harm with no suicidal ideation, to better develop the understanding of risk factors relevant to these groups. In addition, research would benefit from greater attempts to reach those who do not present within healthcare settings.

The current review also found that physical health problems can increase suicide risk. For example, Pompili et al. (2014a) found that in general, patients with DM-1 have a higher risk of suicide than the general population, although research with adolescents is less clear. Thus, further research with adolescents is needed. Furthermore, the incidence of Type 2 diabetes is increasing in the UK, and Scotland has the third highest incidence of DM-1 in the world (Diabetes UK, 2013). Given this, further research should be undertaken in this area to aid non-psychiatric/mental health staff in assessing for suicide risk. A further identified physical health problem in this review was TBI, which was also

found to increase the risk of suicide (Bahraini et al., 2013). Moreover, these results found that between 7 to 27.3% of veterans attempted suicide after traumatic brain injury, although, the authors note that there was a moderate to high risk of bias within their results. This shows that healthcare staff should be aware that individuals with TBI may be at risk of suicide. An overarching similarity across these conditions (DM-1 and TBI) is the chronic nature. In addition, they have the potential to significantly impact on an individuals' daily quality of life. Clinicians therefore should consider the chronic and life-altering conditions when assessing for suicide risk.

Consistent with McLean et al.'s (2008) findings, the current review found that substance misuse, including cannabis, methamphetamine, and alcohol misuse, was associated with increased risk of suicidal ideation, behaviours, attempts and completions (Calabria et al., 2010; Marshall, & Werb, 2010; Pompili et al., 2012). However, in the Calabria et al. (2010) systematic review of cannabis use and suicide, three out of four studies included, did not control for confounding variables related to suicide e.g., depression and alcohol use. The review notes this as a limitation and observes that the evidence is yet unclear as to whether cannabis use increases the risk of suicide. Similarly, Yoshimasu et al. (2008) note that chronic alcohol dependence can promote depression, therefore, interactive effects of alcohol use and mood disorders must be paid attention.

The current review identified a number of biopsychosocial risk factors of suicide. In line with the findings by McLean et al. (2008), the current review found evidence to support a link between unemployment and suicide (Milner et al., 2013a; Milner et al., 2014). Research also found that there is a significantly increased risk of suicide in unemployment, even when adjusting for mental health problems (Milner et al., 2014). In contrast, there can be an elevated risk of suicide along with a particular occupation.

Pompili et al. (2013b) found that military personnel may be at higher risk of suicide many years after they return home. Moreover, Platt et al. (2010) found that veterinary surgeons in the UK are at least three times as likely to die from suicide as members of the general population. Recent research by Milner et al. (2013b) found that the highest risk of suicide appeared to be associated with ‘elementary’ occupations such as labourers and cleaners. There also was a particularly elevated risk among the skilled agricultural, forestry and fishery workers. The research notes that this increased risk perhaps may be in part due to access available to lethal suicide means through these occupations.

With regards to access to means, Anglemyer et al. (2014) found significantly higher odds of suicide among those who had firearm access. Although the study used data from the USA, this could still be applicable to UK settings. For example, farmers in the UK have a high rate of suicide (Booth, Briscoe & Powell, 2000; Gregoire, 2002), and UK farmers are significantly more likely to use firearms to kill themselves compared with matched non-farmer controls (Booth, Briscoe & Powell, 2000). This study also notes that general practitioners should consider depressive and suicidal intention in farmers presenting with physical problems, and if depression is diagnosed, consideration should be given to temporary removal of firearms, as the high rate of suicide in the UK farming community is strongly influenced by access to means. Although suicide by firearms is relatively lower than other methods such as poisoning and hanging, there were still over 120 suicides by firearm between 2009 and 2014 in Scotland (ISD, 2016). Therefore restricting access in line with the suggestions by Booth et al. (2000) should be considered.

3.4.1. Bridged Gaps in the Literature

Prior research by McLean et al. (2008) identified gaps in the risk factor literature which included being affected by the aftermath of suicide or suicidal behaviour; being

LGBT; children, especially looked after children; those who have been physically or sexually abused; and people with physical disabilities. This review has bridged some of these previously identified literature gaps. The review identified that children who have lost a parent to suicide or whose parent had attempted suicide, were at greater risk of attempting or dying by suicide (Geulayov et al., 2012). This can be easily identified by healthcare staff or integrated into an assessment through straightforward questions within an assessment. However, the study which identified this finding had considerable heterogeneity and did not differentiate between genetic and environmental factors. Furthermore, the study only assessed the effects of parental suicide, and did not take into account suicide of other immediate family members, which future research should aim to do.

Sexuality and suicide has thus far been under researched. However, the current review found an increased risk of suicidal behaviour in LGB individuals compared with heterosexuals (King et al., 2008; Pompili et al., 2014b). This indicates that these individuals should perhaps be more carefully monitored if presenting to emergency settings. Although, the number of studies included was small, particularly for bisexuals, and there seems to be a lack of longitudinal research in this area. Further research in this area is needed, particularly as a recent UK survey of over 1500 LGBT young people found that nearly one in four LGB young people have tried to take their own life at some point (Guasp, 2012). Furthermore, research investigating suicide risk in transgender individuals is also needed, as nearly half of transgender people under 26 have attempted suicide (Stonewall, 2017).

McLean et al. (2008) also found gaps in the risk factor literature for those who have been physically or sexually abused. The current review found seven high-quality reviews

that explored abuse in child and adulthood. Of the five studies that reviewed maltreatment in childhood, including physical, emotional and sexual abuse, all found that abuse leads to an increased risk of either suicidal ideation, suicidal behaviours or attempts, or all (Devries et al., 2014; Fry et al., 2012; Maniglio, 2011; Norman et al., 2012; Weich et al., 2009). A few of the studies note limitations in controlling for confounding variables such as type of abuse or other mental conditions. In particular, the review by Fry et al. (2012) used data on children from only the East Asia and Pacific regions, which may limit its generalisability to UK settings.

The assessment of childhood sexual abuse has the potential to be integrated into suicide risk assessment. At present, this type of risk factor is not addressed in commonly used suicide risk assessment measures (e.g. SAD PERSONS or the SIS). Careful consideration should be made, however, to the addition of this sensitive risk factor to an assessment, for example by discussing with service users and stakeholder groups about the terminology and delivery of this during an assessment. Incorporating the service user voice into this kind of consideration prior to adding it into guidelines and tools to identify acceptability and suitability for this group would help to better understand the potential risks of re-traumatising individuals. On a less-tool or policy based level, the individual clinician and patient may benefit during the assessment from beginning with a pre-emptive discussion identifying boundaries for lines of inquiry, so as to set 'safe parameters' during the assessment. This could provide non-explicit indications to the clinician that childhood sexual abuse was an issue but one that the service user is not yet ready to discuss, while also providing autonomy and a sense of shared ownership over the assessment for the service user.

The current review also found that IPV significantly increases the risk of suicide attempts in women (Devries et al., 2013); but found no such impact of IPV on men. However, only three studies in total were included, and these studies did not take into account emotional abuse and suicide, nor did they specify whether the individuals were in heterosexual or homosexual relationships. Therefore, further high-quality research is needed to definitively assess the effect of IPV on suicide in women, and in particular, with men.

3.4.2. Emerging Risk Factors

An emerging risk factor that the current review has identified is internet use and its associations. Daine et al. (2013) found that moderate or severe levels of addiction to the internet in young people were related to increased suicidal ideation. Also, young people appear to learn about suicide and suicidal behaviour online. Cyberbullying also increases the risk of suicide attempts for both victims and perpetrators, and is more strongly related suicidal ideation than traditional bullying (Daine et al., 2013; van Geel et al., 2014). This could aid future risk identification as research has found that risk factors such as bullying are commonly being overlooked in emergency room suicide risk assessments (Alavi et al., 2015), therefore clinicians may wish to consider bullying, and also cyberbullying as an emerging risk factor that could be assessed in emergency settings.

However, the studies are relying on a small number of papers to draw these conclusions (Daine et al., 2013), with the study by van Geel et al. (2014) using only three studies to estimate an effect size for cyberbullying. This is to be expected, as this area of research is in relative infancy as worldwide internet users has risen by a quarter between 2005 and 2014 (International Telecommunication Union, 2015). Therefore, further research should investigate the impact of internet use to establish whether this should be

a factor which should be considered during risk assessment in emergency healthcare settings.

3.4.3. Practical Relevance

The current review updates the suicide risk factor literature post-2007, identifying risk factors which may be useful for clinicians to consider the increased risk in these individuals when presenting to emergency settings. In accordance with both the inclusion and exclusion criteria of the current review, all of the reviews identified and included present risk factors that could easily be detectable in emergency settings. The review has identified known risk factors that could easily be assessed in UK emergency healthcare settings, such as self-harm, and has also identified less well documented but important risk factors. To date, there has been a dearth of findings relating to LGBT individuals and suicide risk. Furthermore, according to Van Orden (2012), current suicide risk assessment tools do not contain guidelines for clinicians on how to tailor risk assessment and crisis management procedures for diverse patient populations, which includes patient sexual orientation. Therefore, this review highlights the risk of suicide in LGB populations which may be useful for clinicians to take into consideration when LGB individuals present to emergency settings.

Emerging risk factors have also been identified, such as internet usage and its associations with cyberbullying. As risk factors such as bullying are commonly being overlooked in emergency room suicide risk assessments (Alavi et al., 2015), clinicians may wish to consider cyberbullying as an emerging risk factor that could be assessed in emergency settings, as findings suggest victims are at increased risk of suicide (Daine et al., 2013; van Geel et al., 2014). Finally, although the current review may contain findings that did not directly assess individuals at risk in emergency settings, the results of the

review are such that findings can be applied to these settings, as review papers exploring risk factors that could not be feasibly assessed in emergency settings (e.g., gene abnormalities) were excluded.

3.4.4. Future Research

Despite the current review, there are still gaps which include: children, especially looked after children; HIV/AIDS; homelessness; isolation; the media; older people; urban deprivation; people with learning disabilities. Some of these topics such as HIV and older people were included in the screening stage, however, the reviews were not of high-quality, as discussed in the above section (3.3.2.). This shows that research should employ more rigorous methodologies and/or reporting of results to deliver meaningful information. The current review found high-quality risk factor research for LGB, but none for transgender individuals, and parental and offspring suicide, but not other family members. As an emerging risk factor, further research should be conducted assessing internet use and suicide. By updating the risk factor literature to align with cultural and societal changes, further development of risk assessment tools and protocols can be implemented to aid healthcare staff in identification of those at risk.

3.4.5. Strengths & Limitations

A strength of the current review is that it provides an update of the existing high-quality suicide risk factor literature that is easily identifiable and applicable to UK emergency healthcare settings. The current review only used papers which were assessed and found to be of high-quality, which may strengthen the results. Furthermore, suicide risk can seemingly be affected by a number of factors, and there have been great social and economic changes since McLean et al.'s (2008) review was published. For example, the global economic recession developed post-publication of the McLean review.

According to Barr, Taylor-Robinson, Scott-Samuel, McKee and Stuckler (2014), the global financial crisis has been linked to increases suicides in England. Similarly, this trend of increased suicide since the global recession extends worldwide, to 27 European countries, and 18 American countries, and particularly in men, and countries with higher levels of job losses (Chang, Stuckler, Yip, & Gunnell, 2013). Therefore, by updating existing literature, this may help to identify individuals most at risk in the future, and to identify further areas of research needed that have been brought about by these changes. Finally, to the author's knowledge, this review is novel in nature, as no such systematic review has been conducted explicitly exploring risk factors that could be applied to, and easily assessed in emergency healthcare settings.

A limitation of the review is that a meta-analysis was not undertaken on any of the results, as studies included were diverse and with high heterogeneity. Meta-analysis is regarded as being superior to narrative synthesis of systematic reviews (Fagard, Staessen, & Thijs, 1996). Following the Cochrane Handbook for Systematic Reviews, forest plots were not generated in this study, as they are discouraged when only a single study is found for a particular outcome (Schünemann et al., 2011), as was present in much of the findings. Schriger, Altman, Vetter, Heafner, and Moher (2010) note that while sparsely populated plots certainly emphasise that "more research is needed," plots with one or less studies serve no other purpose. Therefore, no graphical display of results was conducted in the current review. Future research with more available high-quality studies for particular risk factors could perform subgroup analyses. A further limitation of the review is that primary studies were not included in the search, this was to align with the earlier work (McLean et al., 2008) and to make the data synthesis more manageable in light of the vast quantity of research carried out within the field. However, this could lead to a potential loss of recent and relevant risk factors research.

As with all studies, there are limitations to the current methods employed which may introduce bias into the findings. For example, the databases searched were selected on the basis of their high-quality and likelihood of indexing relevant papers. While additional databases could have been searched, the decision to stop was made when the balance of diminishing returns (duplications) outweighed the number of new, relevant papers being found. Only English language systematic reviews and meta-analyses were included; conference proceedings, primary studies, and grey literature were not searched. This introduces a risk of bias in the resultant sample. However, the desire was to only include high-quality, peer reviewed reviews within the current study. Including grey literature which was not peer reviewed or conference proceedings would therefore have violated this inclusion criteria. Although, prior research has found that the exclusion of grey literature from research can have an impact on results (Conn, Valentine, Cooper & Rantz, 2003; McAuley, Tugwell, & Moher, 2000).

Including only reviews was pragmatic and allowed the synthesis of numerous other syntheses, thereby reducing the risk of replication of research. This also means that the majority of relevant primary papers should be included in the current review, due to their inclusion in the previous reviews. However, this is not guaranteed and there is some possibility that some relevant primary papers were not included due to the inclusion criteria specifying only reviews be included. It is possible that the above issues may have introduced a potential for publication bias in the current review's findings. However, it is a necessity in reviews managing high volumes of data and search returns to develop and maintain strict inclusion criteria, to allow reasonable and manageable data synthesis to be possible. As such, adherence to only including review papers that had been subject to peer review as a minimum quality standard was chosen, particularly as risk factors of suicide

is such a broad ranging topic, which could have resulted in many primary studies which had already been included in subsequent reviews.

3.4.6. Conclusions

Overall, the current review provides a high-quality update of the existing suicide risk factor literature that can be applied to the development of suicide risk identification and assessment in UK emergency healthcare practice. The review has identified research that has bridged gaps in the literature from approximately 2008. There are still a number of potential risk factors that need to be more thoroughly explored, such as internet usage and individuals identifying as transgender. Furthermore, it is recommended that future reviews investigating suicide risk factors endeavour to provide high-quality results by using the recommended PRISMA guidelines for reporting reviews.

The current chapter has provided a summary of the most up to date and strongly evidence-informed risk factors for suicide that can be feasibly assessed within emergency healthcare settings. These risk factors will be investigated further in Chapter 5, where clinicians will be asked to consider their importance when they assess for suicide risk. Unlike some past risk assessment measures, therefore, the current thesis will not only seek to structure the underpinning guidance for developing a suicide risk assessment tool on high quality published evidence, but will also seek to include clinicians' views and expertise within this. This will be followed in Chapter 6 by a qualitative exploration of suicide risk assessment experiences of clinicians. However, prior to proceeding, Chapter 4 will investigate protective factors for suicide which could be feasibly assessed within emergency departments; an area that is recognised by clinicians as important but is often missed within the development of suicide (and other) risk assessment tools.

3.4.7. Chapter Reflections

During the process of conducting the systematic review and research for this chapter, I was able to reflect upon the experience as a whole. Upon completion of this chapter, and prior to the commencement of the systematic review in the proceeding chapter (Chapter 4), I reflected upon using the PRISMA checklist to assess reviews for quality and final inclusion. I felt that the quality assessment could have utilised a more formalised and rigorous approach by, for example, using a quality assessment tool which is evidence-based to assess reviews for methodological quality rather than one that, while based on best-systematic review practice, is not standardised for the way that I applied it in this chapter. I decided to go back to the methods literature and reviewed different quality assessment approaches, deciding finally to use A Measurement Tool to Assess Systematic Reviews (AMSTAR), an evidence-based checklist (Shea et al., 2007; Shea et al., 2009) to assess the quality of reviews relating to protective factors of suicide in Chapter 4. This type of practice reflection allowed for a more rigorous, replicable and improved process.

Also, during the current chapter, a narrative synthesis was used to combine the findings of included reviews relevant to particular topics. Several discussions took place with my supervisory team regarding the use of a narrative synthesis as there were mixed opinions to its use. Some felt that conducting a meta-analysis using some of the available odds ratios for similar risk factors would have been appropriate. However, it was decided to keep the review consistent, and to only to use the narrative approach. With hindsight, there was the potential to use meta-analytical methods on some of the risk factor findings, and this may have been beneficial in some cases, therefore this is something I will now consider in conducting a review of this magnitude in the future. Also, this was the first time I had used a narrative synthesis within a systematic review and I was able to go

through the process of learning this new research skill, closely following the Popay et al. (2006) guidelines. This approach was also used in the proceeding chapter (Chapter 4) and this previous experience made Chapter 4 more manageable, and given the magnitude of the thesis this was welcomed. I also had numerous discussions with my supervisory team about whether to re-work the overarching ‘themes’ further. I felt that it was important to keep the findings descriptive to align to the aims of the research, rather than within a more synthesised but less descriptive analysis.

This publication of this chapter in *Suicide & Life-Threatening Behavior* preceded the completion of this thesis. I have experienced the publication process prior to undertaking this research, but this is the first systematic review that I have published. The process taught me to be explicit in descriptions, particularly of methods such as inclusion and exclusion criteria, as well as how findings can be applied, in this instance to emergency healthcare practice. The publication of a systematic review not only improved my research skills, but also my publication skills. I found the discussion and responses to the reviewers challenging at times, as they disagreed about core aspects of my paper within their reviews (so, when one was complimentary, the other was critical). This did help me to develop skills in co-ordinating and prioritising the editing of papers, though, and in developing my ‘academic voice’ within the paper and research itself. It made me realise that I needed to be very clear about what the findings were saying and what they were not, and that these needed to be presented as simply as necessary without losing the scientific rigour of the review. Furthermore, as the publication process took place before the completion of the thesis, and during the process of conducting the protective factor systematic review in the proceeding chapter (Chapter 4), I was able to incorporate comments and feedback from reviewers into the next chapter, as well as the thesis as a whole.

CHAPTER FOUR: Protective Factors for Suicide Relevant to Emergency

Healthcare Settings: A Systematic Review of post-2007 Reviews

4.1. Background

As discussed in Chapter 3, there are many factors that can identify the risk of suicide in individuals. However, there are also factors that may mitigate suicide risk, which are known as protective factors that should be considered when assessing patients. The SPRC (2011) describes protective factors as characteristics such as individual characteristics (e.g., personality traits), or family and community characteristics (e.g., access to mental health services) that make it less likely that individuals will consider, attempt, or die by suicide. Past research into suicide and suicidal behaviours has often focused only on risk factors for suicide (Kessler, Borges & Walters, 1999; Mościcki, 1997). According to the Centers for Disease Control and Prevention (CDC) (2015), protective factors have been relatively under-researched and have not been studied as extensively or rigorously as risk factors. Furthermore, literature reviews and formal tests of protective factors are also rare within the suicide literature (Halfon, Labelle, Cohen, Guilé, & Breton, 2013; Nock et al., 2008). However, it has been argued that identifying and understanding protective factors is equally as important as researching risk factors (CDC, 2015; Larkin, Di Blasi, & Arensman, 2014).

Prior research has found that social and family support is pivotal within the protective factor literature. For example, research examining 9570 randomly selected 9-13 year olds in New Zealand found that parents and other family members who were caring, teachers being fair, and feeling safe at school, were independently associated with decreased rates of suicide attempts (Fleming, Merry, Robinson, Denny & Watson, 2007). In addition, Taliaferro and Muehlenkamp (2014) found similar results when conducting

the 2010 Minnesota Student Survey, exploring risk and protective factors of suicidality with over 70,000 adolescents. In this study, sport participation, parent connectedness, connectedness to other adults, caring friends, academic achievement, and a fondness for school were associated with reduced odds of reporting suicidal ideation. Furthermore, parent connectedness, connectedness to other adults, caring friends, academic achievement, and neighbourhood safety was found to be associated with reduced likelihood of attempting suicide in both males and females. An additional protective factor of attempting suicide for males was school safety, and another significant factor for females was a fondness for school. In both the suicidal ideation and suicide attempt findings, parent connectedness produced moderately large effects for both genders.

As discussed in some detail in the previous chapter (Chapter 3), McLean et al. (2008) conducted a rigorous systematic review of both risk and protective factors related to suicide and suicidal behaviour. For protective factors relating to suicide, the review searched for existing reviews (either systematic reviews or meta-analyses) and primary studies of protective factors from 1996 to 2007. The search identified only one review of protective factors that met the inclusion criteria, and a further 44 primary studies relating to protective factors. The collated results found protective factors of suicide including coping skills; reasons for living; physical activity and health; family connectedness; supportive schools; social support; religious participation; employment; exposure to suicidal behaviour; social values; and health treatment. The review also identified gaps in the protective factor literature, which included self-help and help seeking, neighbourhood quality, social capital, and older people.

McLean et al.'s (2008) review demonstrated that, although a number of protective factors for suicide have been identified, some are either little researched, or have not been

empirically assessed at all. As previously discussed in Chapter 3, there have been a number of societal changes since 2008, such as technological changes in society, which may impact suicide. Internet use has doubled since 2006 in UK adults (ONS, 2013), and internet use has also risen in younger populations. While internet use and cyberbullying were identified as emergent risk factors for suicide in the previous chapter, recent research has found that support from virtual communities in this population can have a positive effect on self-injurious thoughts and behaviours (Tseng & Yang, 2015). Also, the use of mobile device apps, designed for suicide prevention, have been found to reduce the frequency and intensity of suicidal thoughts (Shand, Ridani, Tighe, & Christensen, 2013). Therefore, further research to identify current protective factors associated with suicide which may have developed in recent years due to societal changes is required. This may in turn, be able to assist health and social care professionals in identifying those individuals at risk of suicide.

Recently, research has begun to investigate whether protective factors can predict multiple suicide attempts. Choi et al. (2013) conducted research with 228 patients visiting emergency departments after attempting suicide. Demographic and clinical variables between first and multiple suicide attempters were compared, and risk and protective factors predicting multiple attempts were investigated. Results found that the past year's highest global functioning score, as measured by the Global Assessment of Functioning (American Psychiatric Association, 1994), and being over 45 years old, served as protective factors against multiple suicide attempts. However, this research took place in South Korea, therefore the study should be replicated in a UK context to assess whether findings are similar. However, the results of this study do, to some extent, reflect the demographic suicide rates in Scotland, where suicide rates decrease after age 49 (ISD, 2016), indicating a protective effect of age. This identification of protective factors

against suicide could potentially aid healthcare staff in assessment of suicide in individuals if incorporated into training, guidelines or a risk assessment tool effectively. One simplistic way to do this in the short-term would be for clinicians to engage in routine outcome measurement and incorporate the Global Assessment of Functioning into this routine measurement process. Through keeping records of a patient's change over time, this could act as an indicator of the need for some form of intervention.

However, while studies such as these are helpful in pushing focus onto protective factors for suicide, the predictive focus may be a hindrance to the clinical utility. This problem mirrors that which was discussed for the wider risk assessment literature on actuarial assessment methods in Chapter 1 and 2. Predictive actuarial models tend to perform best when working with static-type data (e.g., historical factors which are easily recorded). These kinds of data also tend to be the most commonly routinely recorded data within healthcare consultations, and are therefore also more easily incorporated into predictive models than would be the case in individualised factors, a clinician's tacit understandings of their patient, or co-morbidities which may exist. In this sense, in some cases, protective factors (or risk factors) which emerge from these predictive-type studies may be too simplistic to be clinically useful.

Taking Choi et al.'s (2013) finding that being over 45 years of age is protective for suicide as an example, while this may help in public awareness campaigns and targeted pre-hospital interventions, it is unlikely to help the clinician when they are actually assessing a patient. At worst, the message may be misconstrued and older patients may be considered as a lower risk than they actually are. It is therefore important to keep in mind that the focus of a patient assessment, whether it be for risk or protective factors associated with suicide, is not to predict suicide, but to assess, manage and hopefully

reduce their risk. Risk and protective factors for suicide must therefore be clinically informative if they are to be incorporated into assessment guidance, training, or a tool.

Simon (2011) notes that protective factors are frequently overlooked in clinical assessments and suicide risk assessment forms. In the wider scope of risk assessment practices, for example in violence risk assessment, the consideration for protective factors within assessment is increasingly being brought to the forefront (Jones & Brown, 2008). Some assessment tools are now focused solely on protective factors (e.g., the Structured Assessment of PROtective Factors (SAPROF); de Vogel, de Ruiters, Bouman, & de Vries Robbe, 2007). The SAPROF is an instrument for assessing the risk of violence, and as with the HCR-20, it uses a Structured Professional Judgement approach. However, the SAPROF only focuses on protective factors. The SAPROF is divided 17 protective factors across three subscales: Internal items (personal characteristics that can be protective), Motivational items (an individual's motivation to participate in society in a positive manner), and External items (protective factors outside the individual e.g., social relationships) (de Vogel, V, de Vries Robbé, de Ruiters, & Bouman, 2011). Findings evaluating the SAPROF show good inter-rater reliability, good predictive validity, even outperforming the HCR-20 (de Vries Robbé, de Vogel, & de Spa, 2011).

Further research is therefore warranted to identify current protective factors and implement them into suicide risk assessment, as Simon (2010) comments that assessing protective factors provides an essential balance in suicide risk assessment practices. This is particularly important as findings consistently show that approximately one third of individuals who go on to complete suicide have attended emergency departments at least once in the year prior to their death (Da Cruz et al., 2011; Gairin, House & Owens, 2003), therefore multifaceted and feasible assessments into suicide may aid in evaluation of an individual's level of risk and future treatment plans.

4.1.1. Aims & Objectives

As literature, and in particular review papers, explicitly identifying protective factors of suicide is remarkably under-researched (CDC, 2015), and assessing protective factors provides an essential balance in suicide risk assessment (Simon, 2010), further research to identify protective factors of suicide is needed, particularly to inform suicide assessment for emergency healthcare. Furthermore, due to recent cultural and societal changes, updating the protective factor literature can assist in the development of future suicide risk assessment practices. The objective of the current research is therefore to provide a high-quality update of the existing literature post-publication of McLean et al.'s (2008) systematic review of protective factors related to suicide and suicidal behaviour which are applicable to assessment in emergency settings, as these settings are often where those contemplating suicide or who complete suicide in the future attend (Da Cruz et al., 2011).

To the author's knowledge, this review will be novel in nature, as no such systematic review has been conducted explicitly exploring protective factors that can be assessed in emergency healthcare settings. The review also aims to fill the gaps in the literature previously identified by McLean et al. (2008), with the aim that any new findings can be adapted into the development of suicide risk assessment guidance for use in emergency settings. To achieve this, similar search terms and exclusion and inclusion criteria as used by McLean et al. (2008) will be applied in the current review. The current review is concerned only with suicide that involves suicidal intent; it will not include systematic reviews that explore suicidal behaviours such as self-harm which is not associated with suicidal intent.

4.2. Method

In concordance with the previous chapter (Chapter 3), the methodology and presentation of results followed the PRISMA statement (Moher et al., 2009). The current review uses PRISMA items 6-13, 17-20 and the recommended study flow diagram. Items that were not included were outside the scope of the current systematic review. Therefore, items 14-16 and items 21-23 were not reported as they refer to the reporting of summary statistics and meta-analyses, which the current review does not conduct.

4.2.1. Database Searches

During the review, three health and social science databases (PsycINFO; CINAHL; MEDLINE) were searched via EBSCO between January 1, 2007 and December 2015. These databases were chosen cover the research areas of psychology, life sciences, nursing, allied health and healthcare, which are applicable within suicide research. Further, this replicates the method of the preceding chapter (Chapter 3). The search screening process is displayed in Figure 4.1. The search terms used were: suicid* AND self-harm* OR resilien* OR recovery OR protect* OR cop* OR preven* OR reduc*. A list of the databases used and the full search strategy are provided in Appendix 4A. The search was limited to systematic reviews and meta-analyses that were published in peer-reviewed journals in the English language.

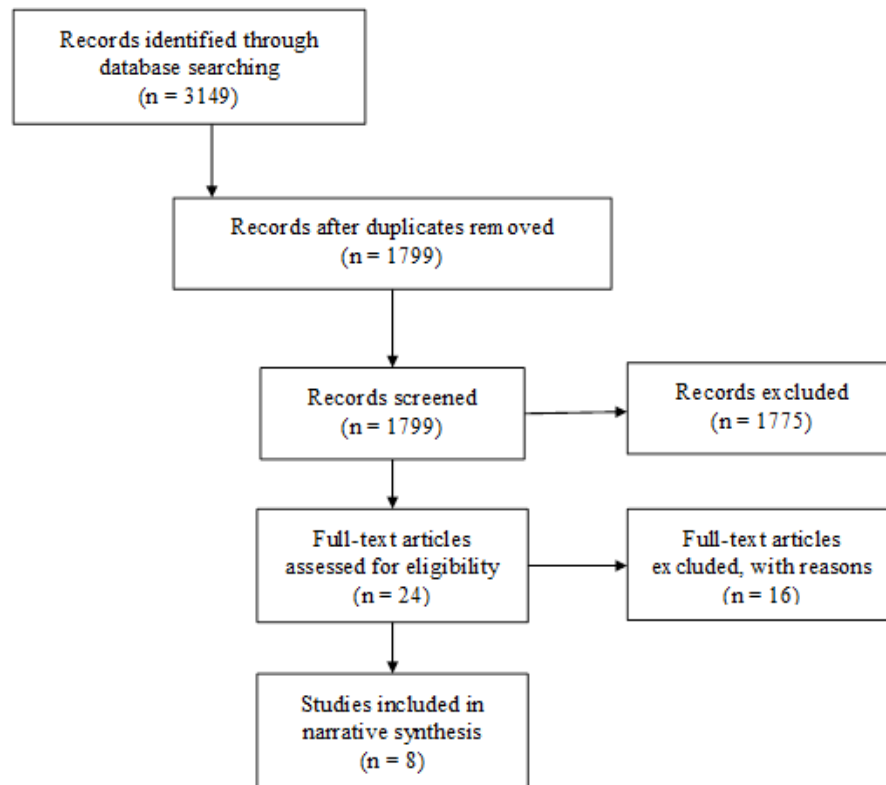


Figure 4.1 Flowchart of Reviews Investigating Protective Factors for Suicide.

4.2.2. Inclusion & Exclusion Criteria

To identify current protective factors for suicide and suicidal behaviours that can feasibly be assessed in emergency healthcare settings, high-quality systematic reviews with meta-analyses and/or narrative synthesis for all age groups were explored. A review of reviews, rather than including primary studies, was chosen due to the broad nature of the subject and furthermore, this systematic review of reviews allows the creation of a summary of reviews in a single document (Smith et al., 2011). Reviews including findings of protective factors for suicide are included, even if the review itself was not exclusively exploring protective factors alone, e.g., if a review paper is more broadly reviewing epidemiology of suicide, or exploring both risk and protective factors. A date restriction of 2007 to 2015 was imposed, as the earlier McLean et al. (2008) review covered research prior to these dates. Reviews were excluded using the following criteria:

- Protective factors which could not be assessed in emergency healthcare settings, e.g., genetic findings relating to protective factors
- Either irrelevant or with no generalisable application to emergency healthcare settings, e.g., research specifically exploring indigenous populations
- Protective factors for suicide in confined, non-hospital settings, e.g., in prisons or care homes
- Suicidal thoughts and ideation when not explicitly linked with actual suicidal behaviours with clear suicide intent
- Assisted suicide or euthanasia
- Primary studies and non-systematic/meta-analytic reviews
- Evaluations of interventions for suicidal behaviour
- Grey literature
- Those published in a language other than English

4.2.3. Screening and Data Extraction

Data were exported from each database and de-duplicated using EndNote Online (Thomson Reuters, 2015). Titles and abstracts were screened by the author (KMCC), then appraised by the Director of Studies (JM). Data were extracted by the author (KMCC) using a standardised form, and checked by JM. The search did not include theses or other grey literature, as only peer reviewed papers were included. However, hand-searching of the reference lists of included studies was undertaken during this review.

4.2.4. Quality Appraisal

Articles which met the inclusion criteria were quality appraised for final inclusion using AMSTAR checklist (Shea et al., 2007) (Appendix 4B). The tool consists of 11 items including the assessment of literature searching; quality of included studies; and

assessment of publication bias. The AMSTAR has good agreement, face and content validity, construct validity, reliability and feasibility for measuring the methodological quality of systematic reviews (Shea et al., 2007; Shea et al., 2009). Of the available 11 AMSTAR scores, 8-11 are characterised as high-quality; 4-7 are medium quality; and scores of 0-3 are low quality. The use of AMSTAR for quality assessment of this review was chosen over using the preceding chapter's methods of adherence to the PRISMA guidelines, as it provided a more structured and standardised approach.

A square root sample ($n = 5$) of the completed quality assessments were independently appraised by JM, as it recommended that a reasonable percentage of studies considered for inclusion should be evaluated independently (Moher et al., 2009; Schlosser, 2007). The inter-observer differences were minimal ($< 10\%$), with two or less AMSTAR items from the possible 11 differing, indicating good reliability in the ratings across the two authors' appraisals with no disagreements on classification of high, moderate, or low quality, any minor differences in individually rated AMSTAR items were discussed and agreed. Should a difference have occurred, a third assessor would have been consulted to mediate. This however, was not required. Only reviews that were classified as high quality using the AMSTAR checklist were to be included. This was to replicate the quality inclusion criteria of the previous chapter (Chapter 3), and to ensure that only high-quality reviews were included in the study.

4.2.5. Data Synthesis

A narrative synthesis of the included papers was undertaken. The narrative synthesis was chosen due to a number of reasons; this replicates the methodology of Chapter 3, and of McLean et al. (2008), and this particular review only searched for new evidence (post-2007) that was not included in the earlier review. Also, there would likely be substantial

heterogeneity due to the wide variation in type of researched protective factors of suicide and populations (based on the outcomes of McLean et al.'s (2008) review). In addition, the papers included in the review used differing methods for example, there was a mixture of meta-analyses and papers only using a qualitative narrative synthesis. Therefore, a narrative synthesis was deemed most suitable for managing and synthesising the data in this review.

The synthesis followed the 'Guidance on the conduct of narrative synthesis in Systematic reviews' (Popay et al., 2006), and used groupings and clusters to organise studies into groups for analysis. Where available, *ORs* and *CI*s are reported. Key data relating to protective factors were extracted from each paper into a summary table. These were then compared across papers to identify higher level themes. These themes categorised similar protective factors together into meaningful, and similar, groupings until overarching protective factors were reached (Table 4.1). Some studies may appear more than once in the results section, as they included data of protective factors of suicide that are relevant to multiple categories.

4.2.6. Ethics Statement

All of the data used in this review were already in the public domain; thus, no ethical approval was required for the completion of this review.

4.3. Results

4.3.1. Study Selection

The search in PsycINFO generated 984 articles, CINAHL a further 364, and MEDLINE found an additional 1801 articles. The combined search yielded a total of 3149 articles, of which 1350 were removed after screening as they duplicated other articles. Of

the remaining 1799, 1775 were excluded as they did not meet the inclusion criteria. A final total of 24 reviews were assessed for quality and final inclusion using a reviewer evaluation and the AMSTAR checklist (Appendix 4C). Of the 24, eight (33.3%) met the high-quality inclusion criteria. Additionally, the reference lists of the eight high-quality included reviews were hand-searched, to identify other reviews to include. However, no identified references met the inclusion criteria. Overall, the eight papers yielded 37 relevant studies, and one meta-analysis of eight studies, contributing to the synthesised themes. Of the relevant studies across the eight papers, 27 were quantitative, eight were qualitative studies, and two were mixed methods studies. The heterogeneity of the studies further emphasises the suitability and appropriateness of the narrative synthesis approach adopted in the current research. A full list of quality assessed included and excluded reviews can be found in Appendices 4D and 4E respectively.

4.3.2. Quality

Of the 24 articles assessed using the AMSTAR checklist, four were found to be of poor quality, scoring 0-3; twelve were found to be of medium quality, scoring 4-7; and the remaining eight were judged to be of high-quality, scoring 8-11, and were included in the review. The mean overall AMSTAR score was 6.83, and the mean AMSTAR score of the high-quality articles was 9.38, indicating a distinction between the overall quality rating and the quality rating for the included articles. Of the 16 reviews that were excluded due to being poor or medium quality, eight of these included topics that were not already included in the review. For example, mental health topics that were excluded were protective factors relating to schizophrenia, self-harm and resilience. Physical health topics that were excluded were old and young age, gender, and eating behaviors. Finally,

occupation which explored dentistry was excluded. The remaining eight excluded reviews explored topics that were included in the final results.

4.3.3. Synthesis of Evidence

The narrative synthesis produced evidence that were categorised into three overarching themes (Table 4.1): Social Support; Family; and Health. Social support comprised of three sub-themes: Social Connections which included having close social relationships; Group Membership; and Internet Use, which included online social support. The theme Family consisted of four sub-themes: Family Connectedness; Sexuality; Marriage; and Children. The final theme Health comprised of two sub-themes: Medication and Pregnancy. Each of the themes and sub-themes are discussed below, with each overarching theme's relevance and possible contribution to/practical application to emergency healthcare setting assessments of suicide being discussed in a concluding subsection. A complete table of included studies and their respective findings can be found in Appendix 4F.

Table 4.1

Identified Suicide Protective Factors

Suicide Protective Factors	Number of Reviews Identified
<i>Social Support</i>	
Social Connections	3
Group Membership	3
Internet Use	1
<i>Family</i>	
Family Connectedness	2
Sexuality	1
Marriage	1
Children	1
<i>Health</i>	
Medication	2
Pregnancy	1

Note. Some reviews were applicable under more than one category, and so the numbers when totalled in the right hand column will not equal the number of reviews included within the narrative synthesis.

Social Support

This theme highlights the importance of belonging to and engaging with others in a social way; whether that is via organised interest groups or on a more personal, one-to-one level. It is comprised of three sub-themes that relate to and characterise social support within suicide protective factors and that could be applied to suicide assessment in emergency healthcare. These are Social Connections, Group Membership and Internet Use.

Social Connections.

For the purpose of this sub-theme Social Connectedness refers to having social connections (e.g., friends, close relationships) and does not include research with family members. Three reviews contributed to this sub-theme (Lakeman & FitzGerald, 2008; Nock et al., 2008; Pompili et al., 2013b). Lakeman and FitzGerald (2008) conducted a systematic review of 12 papers investigating how people live with and overcome being

suicidal. The populations included in this review varied and included both young people and older adults. Reconnection with others was associated with recovery or resolution crisis, and reconnecting with friends and seeking (or accepting) help from others is pivotal to recovery. Furthermore, teenagers reporting a close relationship with at least one person who was significant in their lives, or they established a spiritual/religious connection with, was perceived as instrumental in overcoming negative self-perceptions, inspiring hope, providing meaning and moving past being suicidal. Nock et al. (2008) conducted a systematic review broadly investigating the prevalence, trends in, and risk and protective factors for suicidal behaviour in the USA and cross-nationally. Social connectedness outside the context of religious affiliation were shown to be significantly associated with lower rates of suicidal behaviour. Pompili et al. (2013b) conducted a review of 18 studies exploring PTSD in veterans and suicide risk and found that being satisfied with social networks was protective for suicidal risk in veterans without PTSD. However, this was less protective in veterans reporting PTSD symptoms.

Group Membership.

In three of the eight papers, group membership was an important sub-theme (Haw, Hawton, Gunnell, & Platt, 2015; Lakeman & FitzGerald, 2008; Nock et al., 2008). In the Nock et al. (2008) review, results were also presented for religion as a protective factor and suggested that religious beliefs, religious practice, and spirituality have been associated with a decreased probability of suicide attempts. Potential mediators of this relationship, such as moral objections to suicide and social support, also seem to protect against suicide attempts among persons at risk. However, it was noted that suicides were more frequent in rural areas, which had greater religiosity.

Haw et al. (2015) conducted a selective review to explore contributory and ameliorating factors associated with economic recession and suicide. Membership of the church appears to exert a protective effect on all-cause mortality. Furthermore, Haw et al. found that in times of economic recession in similar countries, those with higher organisation membership, such as trade unions, sports groups or political organisations, have lower all-cause mortality rates, including suicide. Lakeman and FitzGerald (2008) conducted a systematic review of 12 qualitative research papers addressing how people live with and get over being suicidal. Results found that formal support groups and professional contact for HIV-infected gay men to be helpful in protecting against suicide, as connections with healthcare professionals were formed.

Internet Use.

A further sub-theme of Social Support is Internet Use. This describes how use of online social support is a potential protective factor for people at risk of suicide. One review was identified for this sub-theme. Diane et al. (2013) conducted a systematic review exploring the effects of internet use on suicide. Sixteen studies were included in the review and suggested positive influences of internet forums and internet media, in which internet forum users were found to develop relationships, connect with others, meet people with similar problems, and to seek empathy and support rather than advice and used more generally as a coping mechanism. However, it should be noted that the review also reported negative influences of the internet on suicide and suicidal behaviour, such as learning about suicide online, suicidal ideation in relation to online gaming overuse, and cyberbullying.

Family

This theme explores protective factors in relation to family and is comprised of four sub-themes: Family Connectedness; Sexuality; Marriage; and Children. Four systematic reviews contributed to this theme (Bouris et al., 2010; Lakeman & FitzGerald, 2008; Nock et al., 2008; Pompili et al., 2013b), with a total of 14 studies' data being synthesised within this theme.

Family Connectedness.

Family Connectedness refers to social support and connections of family members. Nock et al.'s (2008) systematic review identified that perceptions of family support and connectedness have been shown to be significantly associated with lower rates of suicidal behaviour. The review by Lakeman and FitzGerald (2008) addressing how people live with and get over being suicidal, found that reconnecting with family as pivotal to recovery.

Sexuality.

This sub-theme of Family included one review paper and describes how an individual's sexuality and suicide risk can be mediated by family. Bouris et al. (2010) explored parental influences on the health and well-being of LGB youth. A total of 31 quantitative articles were reviewed, which examined how parents influence LGB youth's experience with suicide. Parent-child relationships characterised by closeness and support emerged as having a protective association with suicide among LGB youth, with family connectedness being negatively associated with suicide. Furthermore, adolescents who felt more cared about by their parents are significantly less likely to have suicidal behaviours.

Marriage.

This sub-theme reports findings of one paper related to protective effects of marriage for suicide and suicidal behaviour. Pompili et al. (2013b) conducted a review of 18 studies exploring PTSD in veterans and suicide risk. Results found that being married was a protective factor for suicidal risk in veterans without PTSD. However, this was less protective in veterans reporting PTSD symptoms.

Children.

This sub-theme was identified within one paper that discusses the effect of having children and suicidal behaviour. Nock et al.'s (2008) findings suggest that being pregnant and having young children in the home also are protective against suicide; however findings suggest that an exception of this would be increased risk in women with postpartum psychosis, although results find this to be too uncommon to have any impact on the general positive effect. It should also be noted, however that the presence of young children is associated with a significantly increased risk of first onset of suicidal ideation.

Health

This theme comprises of two sub-themes: Medication and Pregnancy, with Medication being informed by two of the included systematic reviews (Barbui et al., 2009; Ferrer et al., 2014), and Pregnancy being informed by one of the included systematic reviews (Nock et al., 2008).

Medication.

This sub-theme groups two papers findings that medication may have a protective role in suicide and suicidal behaviour. Barbui et al. (2009) conducted a meta-analysis of over 200,000 depressed individuals (over eight studies) exposed to SSRIs. Among adults,

SSRI exposure significantly decreased the risk of completed or attempted suicide (random-effect *OR* 0.57, 95% *CI* 0.47–0.70). Furthermore, among elderly people (aged 65 or more years), exposure to SSRIs had a significant protective effect (*OR* 0.46, 95% *CI* 0.27–0.79). However, for adolescents, SSRIs have been found to significantly increase risk of completed or attempted suicide in adolescents (*OR* 1.92, 95% *CI* 1.51–2.44).

Ferrer et al. (2014) conducted a systematic review exploring the relationship between antiepileptic drugs (AEDs) and suicide. A total of 11 studies were included, and a narrative synthesis was employed. The evidence of any relationship between AEDs and suicide was mixed. One study found that AEDs may have a protective effect on patients with bipolar disorder, however another study conflicted these results. One study concluded that there was not enough data to confirm the association between an increased risk of suicide and AEDs as a group. However, with regard to individual drugs, they concluded that carbamazepine and valproic acid were protective.

Pregnancy.

This sub-theme included one paper that reported findings of pregnancy and suicidal behaviour. Nock et al. (2008) found that being pregnant protects against suicide. This was concluded by assessing autopsy reports of females who had completed suicide, and finding that the number of suicides of pregnant women was only one-third of that expected.

4.4. Discussion

The current chapter aimed to synthesise the findings from past reviews investigating protective factors for suicide which could feasibly be applied to emergency department assessments. It aimed to bridge the gap and build upon the earlier review by McLean et

al. (2008), while also tightening the focus to emergency department assessments. It builds upon the previous chapter's findings as it broadens the scope of the evidence base from which the current thesis will develop guidance to inform the development of a risk assessment tool to not only include risk factors, but also the comparatively under-researched protective factors for suicide; something that is not wholly novel but that is often considered as an add-on or after-thought within risk assessment.

From the current review's findings, similarities to past research and known protective factors for suicide were found, including the importance of social and familial connectedness, and the impact of health and medication. A strength of the current review also is that it identified emerging protective factors such as internet usage, in particular the social support aspects of internet usage (Diane et al., 2013), and also the role family support has in mediating suicide in LGB individuals (Bouris et al., 2010). These are both emerging protective factors of suicide that could be easily identified by healthcare professionals in emergency healthcare settings. This is a positive finding which indicates that there has been an expansion in research in this previously under-researched area.

However, Bouris et al.'s (2010) research did not investigate protective factors of suicide with transgender individuals, indicating a literature gap. This is a similar gap to that identified within the risk factor systematic review in Chapter 3, indicating an overall gap in our knowledge about risk and protective factors in this area. Bouris et al. (2010) also noted the dearth of prospective research with LGB individuals; in particular, a lack of longitudinal findings and research with ethnic minorities and rural communities. Also, their results tended to focus on negative and not positive outcomes. Further research is therefore needed for LGBT individuals, and further synthesis of available literature will be needed following a proliferation of primary research in these areas.

The current study included a review assessing exposure to SSRIs in depressed individuals (Barbui et al., 2009). Although the review found that SSRIs significantly increased risk of completed or attempted suicide in adolescents, as also reported in the previous chapter, among adults and elderly people, SSRI exposure significantly decreased the risk of completed or attempted suicide. However, the current review identified mixed results regarding whether AEDs can protect against suicide risk. Ferrer et al.'s (2014) findings, which synthesised data from 11 publications could not reach a clear consensus about whether AEDs were protective of suicide or not, and hence more research is needed in this area before this factor can be reliably included in assessing protective factors for suicide within emergency admissions. In addition, a factor as specific as AED use, while relevant within the healthcare setting, is not likely to be applicable to the majority of prospective patients within an emergency healthcare setting. Therefore, while potentially relevant for some patients, the practicality of assessing for this potential protective factor of suicide within an emergency healthcare setting is also not entirely feasible. With the present level of reliability, and taking into account potential feasibility issues, this factor may not be suitable for regular assessments with all patients, and instead could be considered instead only with those known to have epilepsy and be using AEDs, by a specialist who is knowledgeable in this area.

4.4.1. Emerging Protective Factors

The findings of this review indicate that internet usage, in particular online support by using internet forums, may have positive influences on young people at risk of suicide (Diane et al., 2013). This is a new finding since publication of the McLean et al. (2008) review. However, these findings are based on a small number of papers, often with no clear outcome measures. This is to be expected, as this area of research is in relative

infancy. Therefore, further research should investigate the impact of internet use, such as online support and the use of apps, on suicidal behaviours and whether its usage may act as a protective factor. The findings that internet use may have a protective effect sit in contrast to findings of the risk factor systematic review (Chapter 3), that found that internet use and its associations such as cyberbullying, may increase the risk of suicide and suicidal behaviours. This shows the interaction between both risk and protective factors, and these interactions are something that should be considered in further risk and protective factor research, and the development of tools assessing for both risk and protective factors.

4.4.2. Practical Relevance

The current review successfully updated the protective factor literature, which thus far has been under-researched (CDC, 2015; Halfon et al., 2013). The review has identified known protective factors that could easily be assessed in emergency healthcare settings, for example whether an individual has perceived sufficient social support, as well as identifying potentially emerging protective factors such as online support (Diane et al., 2013), that could also be feasibly assessed in emergency settings. As protective factors are frequently overlooked in clinical assessments and risk assessment forms (Simon, 2011), and should be assessed to provide an essential balance in risk assessment (Simon, 2010), updating the protective factor literature is essential to provide evidence that these factors are important in assessments.

4.4.3. Current State of Suicide Protective Factors Research

From the results of this review, it is evident that suicide protective factors are remarkably under-researched. The McLean et al. (2008) review identified gaps in the

protective factor literature which included older people. A review exploring the protective effect of older people did meet the inclusion criteria, however when assessed for quality, was found to be of medium quality using the AMSTAR checklist and subsequently was not included in the review. Again, as with the earlier risk factor review (Chapter 3), this shows that research should employ more rigorous methodology and/or reporting of results to ensure high-quality.

In comparison to the systematic review of the literature surrounding risk factors for suicide relevant to emergency healthcare settings in the previous chapter (Chapter 3), a higher number of reviews were identified ($N = 35$), in comparison to the eight this review of protective factors identified. This is consistent with other areas of risk assessment; such as generalised violence risk assessment (de Vogel et al., 2007). Of the total eight included reviews, not one explored protective factors of suicide exclusively; and were for example, part of a larger investigation of suicide risk or suicide epidemiology. The included papers were reporting more generally on suicide in certain groups such as veterans or LGB youth. While this in and of itself is not a major issue, it indicates that the exploration of protective factors relating to suicide may be considered an adjunct to other aims.

Furthermore, the majority of the included reviews only reported on a small number of studies of protective factors from a larger subset (e.g., Lakeman & Fitzgerald, 2008; Nock et al., 2008). Again, this is not a critique on the included reviews, but highlights the lack of specific investigations into protective factors alone. This shows a clear need for research specifically targeting protective factors. That said, the subsequent investigation of protective factors and how they interact and possibly moderate risk is also needed. It is therefore recommended that: 1) more specific primary research investigating the efficacy of identified protective factors, such as the varying types of social support, health

factors, and familial factors, is carried out with a focus on both short and long term efficacy; and 2) the interactions between protective and risk factors for suicide are investigated. Updating and furthering suicide protective factors research may help in the identification and risk management of individuals who are at immediate risk of suicide and those who are not. Simon (2010) notes that in healthcare, protective factors require the same thorough assessment as risk factors, and that an assessment that considers only risk factors is incomplete. However, formal assessments of protective factors are rare in the suicide literature (Nock et al., 2008) and indeed in wider violence risk assessment practices (de Vogel et al., 2007), therefore further research exclusively exploring protective factors may be beneficial in future suicide risk assessment in emergency healthcare settings.

On a positive note, it seems that the research involving protective factors of suicide is of similar quality to the suicide risk factor literature. Of 118 papers identified for the risk factor systematic review in the preceding chapter (Chapter 3), 35 (approximately one third) were assessed as high-quality and included in the findings. In this current review, eight of the 24 reviews found were assessed as high-quality, which is also around one third. This indicates that high-quality research is being conducted in both the suicide risk and protective factor literature, but to a proportionately lesser extent. The current review could have included the medium quality assessed reviews to increase the numbers of included reviews and the scope of the results. However, it was deemed that the method from the previous chapter should be replicated, to only include high-quality reviews, which resulted in fewer reported findings. Furthermore, the inclusion of only the high-quality assessed reviews may increase the robustness of the concluded protective factors.

4.4.4. Strengths, Limitations, & Risk of Bias

A strength of the current review is that it provides a high-quality update of the existing suicide protective factors that are easily identifiable in healthcare settings. The current review only used papers which were assessed and found to be of high-quality, increasing the robustness of the conclusions reached. The update is warranted, as suicide is affected and mediated by external factors such as the economy and social change (Barr et al., 2012), and there have been great social and economic changes since McLean et al.'s (2008) review was published. Therefore, by updating existing literature, protective factors emerging since 2007 and those which have had additional evidence to support their use have been identified. This is helpful in identifying areas requiring further attention (e.g., within the LGBT community) and those which have strong evidence to be incorporated into assessment. The latter may be helpful in the identification of individualised factors that could minimise a person's immediate and future risk of suicide. Also, to the author's knowledge, this is the first systematic review exploring protective factors that can feasibly be assessed in emergency healthcare settings.

As in the previous chapter, a limitation of the review is that a meta-analysis was not undertaken on any of the results, and for the same reasons. The current review employed systematic methods based on previously published, high-quality narrative reviews in the area (e.g., McLean et al., 2008) to synthesise the protective factors that could easily be assessed in emergency healthcare settings. However, as with all studies, there are limitations to the current methods employed which may introduce bias into the findings. First, the databases searched: these were selected on the basis of their high-quality and likelihood of indexing relevant papers. While additional databases could have been searched, the decision to stop was made when the balance of diminishing returns

(duplications) outweighed the number of new, relevant papers being found. A further limitation was that primary studies were not included in the search, which could lead to a potential loss of recent and relevant protective factor research. Also a grey literature search was not undertaken, this was to only include high-quality, peer-reviewed review papers. However, there is a risk that publication bias was not properly controlled for. Prior research has found that the exclusion of grey literature from research can have an impact on results (Conn et al., 2003; McAuley et al., 2000).

4.4.5. Conclusions

Overall, the current review provides a high-quality update of the existing suicide protective factor literature that could be applicable for use in emergency healthcare setting assessments. The review has added to the existing protective factor literature, and has identified areas where further research is needed, in particular protective factors among certain individuals such as LGBT individuals, and emerging protective factors such as internet usage. Further suicide protective factor research is needed, as this is often overlooked in comparison to the exploration of risk factors, and may be beneficial in assessing an individual for risk of suicide in healthcare settings. In regard to the overarching aim of the thesis, the synthesis of the data in the current chapter suggests that the following protective factors may be appropriate in assessment of suicide in emergency healthcare settings: social support, family, sexual orientation, and health. These, and the risk factors identified in Chapter 3, will be further explored in proceeding chapters in relation to clinician suicide risk assessment in the emergency department.

What is apparent within the previous two chapters' findings is the huge volumes of data surrounding risk and protective factors that may be relevant to emergency department assessments of suicide risk. With no standardised guidelines within Scotland

(or beyond), and with limited time, the clinician is at a disadvantage when it comes to delivering evidence-based, clinically feasible and time-effective risk assessments for suicide within emergency departments. It is clear that greater clarity over which of the identified risk and protective factors identified in Chapters 3 and 4 are most clinically useful and acceptable is needed. To do this, the research described in both Chapter 5 and 6 seeks to identify: 1) what suicide risk assessment practices are within Scottish emergency departments; and 2) which of the identified risk and protective factors for suicide are considered by emergency department clinicians to be most relevant and informative within their suicide risk assessment practice. This will allow the clinicians' tacit knowledge and opinions to be taken into consideration within the development of the underpinning guidelines for suicide risk assessment which the current thesis aims to develop, rather than focusing on prediction and 'edging out' the clinician from the risk assessment (as the latter has been widely rejected by clinicians in other areas of risk assessment (Murray & Thomson, 2010), as previously discussed in the thesis). Investigating current risk assessment practice will also allow the identification of what currently 'works' or is being feasibly applied in real practice, informing the type of and format of any future suicide risk assessment tool development.

4.4.6. Chapter Reflections

The current chapter mirrored the methods used in the preceding chapter (Chapter 3) with some methodological adaptations. However, upon reflecting on Chapter 3, the quality assessment method to assess articles for inclusion were changed. The current chapter utilised the AMSTAR checklist, which was found to be more methodical and was more user friendly. The AMSTAR also provided a tangible score of quality, which the prior chapter's (Chapter 3) included reviews did not have. The reflection and decision to

use this method proved to be helpful, and this method would not have been utilised unless this was reflected upon from Chapter 3. This also helped me to gain confidence while deciding about inclusion/exclusion of papers and did help to make the process flow better and more quickly, which was helpful for me at a busy period of my thesis; helping me to feel achievement upon completion.

The current chapter conducted a review of reviews. This was primarily to keep the methods of the systematic reviews in this thesis consistent. However, upon reflection of this decision, this may not have been the best approach. The inclusion of primary studies in the review may have been more appropriate given the dearth of protective factor literature, and may have given rise to the inclusion of more wide-ranging results. If I were to conduct this review again, I would likely chose this option. However, given the time constraints of a PhD, a review which includes primary studies is a large undertaking, and this may have impacted upon the time for the later quantitative and qualitative chapters.

This systematic review has also been submitted to *Archives of Suicide Research*. The manuscript was sent back with reviewer comments such as clarification of grouping and themes. These are similar comments to those I received within the reviews when I submitted my first systematic review for publication, and so this has really highlighted the need for clarity in writing and structure; reiterating the lessons learnt from the first review. Despite the need to amend the manuscript, the reviewer comments were seemingly positive, as they had noted the importance of further research exploring protective factors. This process was beneficial in completing the thesis, as it allowed me to incorporate the reviewer suggestions into the chapter which increases the rigor of the review. Having positive feedback from those outwith the supervision team is also reassuring.

Reflecting upon both the previous chapter and the current chapter's reviews, it could be argued that they may have benefitted from service user involvement. For example, Pollock et al. (2017) note that stakeholder involvement is beneficial to the quality, relevance and impact of health research. These authors further discuss that there is now an expectation from funding bodies that researchers will actively involve patients in their research which includes systematic reviews. However, as this thesis is clinician focused, the involvement of service users at this stage may not have been appropriate, though, on the other hand, it could be considered that incorporating the service user voice could have helped balance the power that currently exists in the literature (i.e., academic and clinician focused). However, the decision was made to keep the research literature focused and clinician centred at an early stage. Furthermore, the systematic reviews were both broad reviews covering all risk and protective factors relevant to emergency department settings since 2007, so it is possibly unlikely that any further risk and protective factors would have emerged with service user involvement. However, service user involvement in future reviews should be considered, possibly at the initial inception of the search strategy stage and when interpreting the findings. This would, as mentioned earlier, help to reduce the imbalance of power that occurs both in terms of the clinician-patient relationship, but also the academic-patient power imbalance. As academics it is increasingly clear that our aims and objectives do not always apply directly to real-world settings, despite best intentions and following best practice guidelines. Although the current thesis' reviews did not incorporate the service-user voice, nor have any other reviews to date; and future researchers should strongly consider this as an avenue for progression in the area.

CHAPTER FIVE: Suicide Risk Assessment Practices across Emergency Departments in Scotland: A National Study

5.1. Background

Now that the current suicide risk and protective factors relevant to emergency department assessment, as identified within the literature, are known (Chapters 3 & 4), and following the MRC (2008) developing complex intervention guidelines to identify the existing evidence base, current practices of suicide risk assessment and clinician experiences need to be explored to further develop suicide risk assessment for emergency healthcare settings. This chapter will provide a snapshot of current suicide risk assessment practices across emergency departments in Scotland, and will seek clinicians' views of importance of risk assessment and risk factors for suicide, and their confidence and experience of assessing risk. Finally, the data collected will be used to indicate the decisional style and the risk information used by clinicians to assess suicide risk. First, a discussion about what is currently known, and not known, about current practice will be presented.

In 2013, the Health & Social Care Information Centre published findings from 2011/12 that found that of 1.5 million users of adult mental health services in England, an estimated 630,000 (or 41.2%) had at least one emergency department attendance. Furthermore, mental health service users who accessed hospital services during 2011/12 did so more frequently, around twice as much, as the corresponding general population. According to Ramesh (2015), despite the UK government having ceased the publication of emergency department statistics with regards to mental health admissions since 2012, it is estimated that the numbers of this group presenting at emergency departments have increased from 330,000 in 2002 to over one million today. Prior research has suggested

that, in many countries emergency departments are the only 24-hour access to healthcare available, and they have therefore become the default option for acute contact for suicidal patients (Fields et al., 2001; Larkin & Beautrais, 2010).

Research from UK samples show that approximately one third of individuals who go on to complete suicide have attended emergency departments at least once in the year prior to their death (Da Cruz et al., 2011; Gairin et al., 2003). Emergency department records in Scotland between 2009 and 2012 showed that 16% of those who died by suicide had attended an emergency department in the 30 days before their death, and 25% attended within the three months before their death (ISD, 2014). The prior findings (Da Cruz et al., 2011; Gairin et al., 2003; ISD, 2014) indicate that emergency departments are often a place where someone at risk of suicide may present, whether they attend with physical injury or for crisis emergency assessment or treatment. Despite this, little is currently known regarding national practices of how patients are being assessed for suicide risk when presenting to these settings.

As discussed in Chapter 1, the BMJ Best Practice (2015) note that when establishing the presence of suicidal ideation, the overall goal is to determine the risk for death by suicide. Therefore, history taking and a thorough psychological assessment, especially addressing suicide risk factors, are key. Bouch and Marshall (2005) suggest using a Structured Professional Judgement approach to assess for suicide risk. This involves clinicians carrying out a structured assessment, which is used in the formulation of a risk management plan. However, as was also discussed in Chapter 1, thorough Structured Professional Judgement assessments are time-intensive (Khadivi et al., 2008), and emergency departments are time limited. The Scottish Government (2016) HEAT Targets aim that 95% of patients attending emergency departments should wait for less than four

hours from arrival to admission, discharge or transfer. Given these time constraints, there is a need to improve suicide risk assessment practices in these settings, to ensure that evidenced-based, transparent assessments are being carried out, but ones which also afford clinical flexibility and feasibility. One way to gain insight into how to achieve this is to identify what is currently happening in real practice. That is, 1) what risk assessment tools are feasibly being used in practice, whether these are evidence-based or 'home grown', and what format these take; and 2) which risk factors do clinicians actually use when making judgements and decisions about a patient's risk of suicide.

Only a handful of studies have investigated risk assessment procedures in UK hospitals. Recent research has found variation in the provisions such as psychiatric assessment rooms in UK emergency departments (Bolton, Palmer, & Cawdron, 2016), and research has found variation in risk assessment practices (Haq, Subramanyam, & Agius, 2010). Haq et al. (2010) investigated the exploration of suicide risk factors and suicide intent of self-harm presentations by doctors in a UK emergency department to ascertain whether a psychiatric assessment with full mental state examination had been conducted with referral to psychiatric services if deemed necessary. Twenty-five sets of medical notes were collected retrospectively and collated at random for patients who had presented with self-harm to the emergency department. A previous attempt of self-harm was explored in only 13 cases, and was not documented in the remaining 12 cases. Suicidal ideation was only documented in 11 out of the 25 cases. The overall findings suggest that suicide risk factors and suicidal intent was poorly documented, and a mental state examination was not documented in any of the 25 cases reviewed. This is suggestive of variation in care across patients, indicating poor consistency of care. This finding is in direct contrast to the NHS Scotland Quality Strategy (2010), which outlines quality of care, such as increasing standards and reducing variation as key components to improving

patient experiences. Further, the reason for this variation is not explored in Haq et al.'s (2010) paper, indicating again that more in-depth primary data are required.

Bennewith, Gunnell, Peters, Hawton and House (2004) conducted a qualitative interview study at 32 randomly selected hospitals in England to explore this topic in greater depth. At each hospital, two to five key emergency and psychiatric staff were interviewed concerning hospital service structures. Only 17 of the hospitals had guidelines available for staff in emergency departments assessing the risk of suicide. Although this study adds to the literature for assessing the risk of suicide in emergency departments, it did not explore what the guidelines at each hospital were, and what assessment practices were in place at each site. Furthermore, the study was not solely focused on emergency staff, as psychiatric staff were also interviewed, and there may have been differences in awareness of guidelines between the two groups of staff.

Quinlivan et al. (2014) conducted a more detailed study across 32 hospitals in England, to assess which risk scales were used for assessment of self-harm by emergency department clinicians. In 28 of 32 (87.5%) hospitals, there was a protocol or guideline for the immediate assessment of suicide risk for patients who presented with self-harm in the emergency department. However, this indicates that 12.5% of hospitals had no guidelines or protocols that staff were aware of when presented with an individual who is at risk of suicide. The research also found that the most common means of assessing risk following self-harm was the use of locally developed structured pro-formas, which were in use at approximately 40% of the emergency departments. This contradicts the Royal College of Psychiatrists (2010) recommendations that the use of locally devised risk assessment tools that lack an evidence base should be abandoned. Furthermore, Quinlivan et al.'s (2014) research found that SAD PERSONS was the most commonly used published risk

scale by emergency clinicians in hospitals in England following self-harm (28.1%). This is particularly worrying as recent research suggests that the SAD PERSONS is not reliable and should not be used in its present form (SBU, 2015). Only one hospital in Quinlivan et al.'s (2014) study reported using clinical judgment alone to assess risk.

Although the previous studies (Bennewith et al., 2004; Quinlivan et al., 2014) inform risk assessment practice knowledge, these studies were investigating presentations of self-harm, and did not discuss the risk assessment of admissions of suicidal behaviour and/or ideation alone. Furthermore, the study by Quinlivan et al. (2014) only interviewed key emergency department staff, which does not provide a complete 'on the ground' picture of suicide risk assessment practices. Psychiatric staff were also interviewed, and it is likely that Psychiatric staff have a greater knowledge of suicide and suicide risk assessment, therefore they may have differing assessment practices to emergency department clinicians. They also did not explore clinicians' reported facilitators, barriers or confidence in assessing risk, nor did they explore clinician perception of the importance and relevance of individual risk factors. Finally, the study was conducted in England only, and while this may be generalisable to the UK, there may be differences in Scotland (where the current thesis is focused), given the different health and social context (e.g., the higher suicide rate in Scotland) and potentially devolved health and social care policies and processes applied within the Scottish context.

The findings of the studies do, however, suggest that variation across suicide risk assessment practices in hospitals exists. To the author's best knowledge, at present there is no official policy that exists for the assessment of suicide risk in emergency departments Scotland or UK-wide, and according to SAMH (2012), if someone has sustained physical injuries as the results of a suicide attempt, the protocol for assessing

suicide risk in these settings varies depending on the local hospital. This problem also extends to the USA (Simon & Shuman, 2006). There are a number of advantages to having clear policy and guidelines. For example, having guidelines available can increase confidence in healthcare staff. Delgadillo et al. (2014) found evidence that training and development of clinical guidelines can improve mental health practitioners' confidence in assessing and managing clinical risks. Despite the lack of policy and guidelines (SAMH, 2012), and the figures for completed suicide indicating a public health problem (WHO, 2015), in conjunction with the rate of completed suicide post-attendance at emergency departments after one month (Da Cruz et al., 2011; ISD, 2014), very little is understood about current suicide risk assessment practices in emergency departments. Therefore, further research into this area is needed to gain an understanding of the current picture of assessment practices.

5.1.1. Aims & Objectives

The aim of this study is principally to explore current suicide risk assessment practices in emergency departments, and to also to explore clinician reported experiences of and confidence in assessing suicide risk, barriers and facilitators to risk assessment, and their perception of risk factors in their assessment of risk. From these data, clinician decision making styles within suicide risk assessment will be assessed to identify which risk factors they consider important within their decisional process. For the purposes of the study, a Scotland wide study was chosen, rather than UK-wide, as NHS Scotland is managed separately from the NHS elsewhere in the UK, which also increases the manageability of the research, as ethical approval systems for the devolved NHS services are different. To the author's knowledge, this is the first study investigating suicide risk assessment practices in emergency departments across Scotland, and based on prior,

similar research (Quinlivan et al., 2014), it is hypothesised that there will be substantial variation in suicide risk assessment practices across emergency departments.

5.2. Method

5.2.1. Ethical Approval

Prior to the commencement of this study, ethical approval was sought from both the Edinburgh Napier University Research Integrity Committee, and every Health Board in NHS Scotland, with the exception of one, which did not have an emergency department at the time of this study.

Ethical Requirements.

To obtain ethical approval, the project adhered to the BPS (2014) Code of Human Research Ethics, and the Health & Care Professions Council (HCPC) (2016) ethics guidelines. This involves minimising any risk to participants, receiving valid consent from participants, ensuring confidentiality, refraining from deception, and providing debriefing to participants. The ways in which this research adhered to these principles are outlined below. Deception was not used in this research, therefore is not discussed. Furthermore, the 'Giving Advice' guidelines were also omitted from the ethical consideration of this study as the research involved only collecting descriptive survey data from participants regarding their clinical practice. However, as part of the debriefing, participants were offered contact information of relevant charities they could contact for advice if they so wished.

Risk and Protection of Participants.

The research involved a potential risk to participants, due to the consideration of patient suicide, which could be described as a ‘sensitive topic’ as defined by the BPS (2014). However, the participants were all trained clinicians, who had experience of suicide risk assessment, and it was therefore likely that they had encountered patient suicide as part of their role. However, participants were able to contact the author and an independent member of staff based at Edinburgh Napier University (the host institution) with any concerns about the study. Support helpline phone numbers were also provided on the debriefing sheets.

Valid Consent.

Informed consent was acquired by ensuring that participants were given sufficient information about the research prior to agreeing to participate. This was achieved by providing prospective participants information sheets (Appendix 5A) which included, but was not limited to, the following information: the aims of the project; the type of information that was to be collected; the methods of data collection; the conditions of confidentiality; compliance with the data protection; the right to withdraw at any time; the details of the author and an independent member of staff based at Edinburgh Napier University; and how the data would be used. If participants were willing to take part, they were requested to sign a consent form (Appendix 5B) as a statement of the acknowledgment and documentation of their consent.

Confidentiality.

Prior to agreeing to take part, participants were ensured confidentiality. No directly identifiable information was collected and participants were assured that if the data were

published, they would not be identifiable. Furthermore, surveys were individually numbered and corresponded to the participant's copy of the information sheet, this was to ensure that if the participant wished to withdraw at any time, they would be able contact the researcher anonymously and quote the number so that the data for the corresponding data could be destroyed.

Debriefing.

The participant debrief sheet (Appendix 5C) provided details of the author and an independent member of staff from Edinburgh Napier University to contact if they wanted to discuss further any details of the study. The sheet also listed suicide helplines and websites for participants to contact if they had been affected by the study.

University Research Integrity Committee.

Ethical approval was granted from the Edinburgh Napier University School of Applied Sciences Research Integrity Committee in July 2015 (Appendix 5D).

NHS Scotland Ethics.

To collect data from every emergency department in Scotland, NHS management permission and Research and Development (R&D) Approval for each NHS research site had to be obtained. For the purpose of this research, this included every Health Board in Scotland, with the exception of one, which did not have an emergency department at the time of the research. R&D approval was granted for every emergency department in each Health Board in Scotland at varying dates between February and August 2016 (Table 5.1).

Table 5.1
NHS Health Board R&D Approval Dates and Appendices

NHS Health Board	Emergency Departments	Approval Date	Appendix No.
Ayrshire & Arran	Ayr Hospital	01/03/16	5E
	Crosshouse Hospital		
Borders Dumfries & Galloway	Borders General Hospital	18/04/16	5F
	Dumfries & Galloway Royal Infirmary Galloway Community Hospital	29/02/16	5G
Fife	Victoria Hospital	08/03/16	5H
Forth Valley	Forth Valley Royal Hospital	29/02/16	5I
Greater Glasgow & Clyde	Glasgow Royal Infirmary Inverclyde Royal Hospital Royal Alexandra Hospital Royal Hospital for Children The Queen Elizabeth University Hospital	20/07/16	5J
Grampian	Aberdeen Royal Infirmary Dr Gray's Hospital Royal Aberdeen Children's Hospital	19/04/16	5K
Highland	Belford Hospital Caithness General Hospital Lorn & Islands District General Hospital Raigmore Hospital	23/03/16	5L
Lanarkshire	Hairmyres Hospital Monklands Hospital Wishaw General	23/08/16	5M
Lothian	Royal Hospital Sick Children Edinburgh Royal Infirmary of Edinburgh St John's Hospital	03/02/16	5N
Shetland	Gilbert Bain Hospital	10/05/16	5O
Tayside	Ninewells Hospital Perth Royal Infirmary	17/05/16	5P
Western Isles	Western Isles Hospital	22/06/16	5Q

5.2.2. Design

The study used a cross-sectional survey which incorporated both a descriptive and comparative design. A descriptive design was used as little is known about current suicide risk assessment practices in Scotland. This section of the survey explored what current risk assessment practices were. A comparative design was used to assess differences between clinician practices, both in terms of current risk assessment practices and in terms of confidence when assessing risk, and ratings of importance of specific risk factors (which acted as the dependent variable in the study), between those who currently use suicide risk assessment tools and those who do not. Independent variables included gender, professional grouping, and inter and intra-department differences. Finally, a brief modelling study was carried out to identify what decision making process is used by clinicians when assessing risk, what risk factors are used, and whether there were differences in decision making processes across those clinicians who have and have not used suicide risk assessment tools.

5.2.3. Participants

The survey was conducted Scotland-wide, as all NHS emergency departments in Scotland ($N = 29$) were eligible to participate in this study. This was to develop a national picture of suicide risk assessment in the emergency department, and allow findings to be generalised nationally. Participants were recruited using purposeful convenience sampling, as although the survey was sent to those employed as an emergency department clinician (either as a nurse practitioner or doctor), only those with prior experience of assessing patients presenting with suicidal thoughts, ideation, or behaviours in these settings were eligible to participate. Participants were excluded if they had no experience of working with suicidal patients in the emergency department. This method of sampling

has been used previously in quantitative healthcare research in order to target specific groups (Dilley et al., 2002). At the time of data collection (spring/summer of 2016), there were 29 emergency departments across 13 NHS Scotland Health Boards.

A total of 112 surveys were sent to 12 of the 13 NHS Scotland Health Boards, across 23 of the 29 (79%) emergency departments. Six emergency departments did not respond. In total, of the 112 distributed surveys, to 23 emergency departments, staff from 17 responded, totalling 54 emergency department clinicians responding to the survey (48.2% response rate). This aligns to prior research that found questionnaire based studies in accident and emergency departments in the UK and Ireland have a response rate of 55-100% (Cooke, Wilson & Bridge, 2000). However, three surveys were incomplete, and were therefore not included in the analysis. Thus, in total, data from 51 emergency department clinicians across 17 emergency departments were included in the analyses. Participant demographics can be found in Table 5.2. The majority of the sample were registered doctors (92%), and the remaining were registered nurses (8%). Thirty-two characterised themselves as Doctors, 10 as Consultants, four as Nurses, two as GP Trainees, one as a GP, and one as a Physician Associate in Emergency Medicine. The majority of the sample were female (54%). Of the total 17 emergency departments that were included in the research, 15 of these had more than one respondent, two emergency departments only had one respondent.

Table 5.2
Participant Demographics

<u>Characteristics</u>	<u><i>n</i></u>	<u><i>%</i></u>
Gender		
Female	27	54
Male	23	46
Profession		
Consultant	10	20
Doctor	32	64
Nurse	4	8
Physician Associate	1	2
GP Trainee	2	4
GP	1	2

5.2.4. Materials

For participants to take part in this study, each emergency department was posted a survey pack. The pack contained a total of five information sheets (Appendix 5A), five consent forms (Appendix 5B), five surveys (Appendix 5R); five debrief sheets (Appendix 5C) and five pre-paid return envelopes. A total of five surveys to a pack was chosen as this gave a similar sample per hospital as prior research (e.g., Bennewith et al., 2004), gave a manageable sample for the purposes of the research within the given time frame, and would still give a suitable representation of clinicians' suicide risk assessment across Scotland. Local contacts were informed that additional packs would be sent upon request, but none were requested.

Survey.

The survey (Appendix 5R) contained a total of 13 questions, some of which had sub-question options within them. The survey ascertained participant demographic

information including gender, current professional role, and current NHS region. Aligned to prior research (Bennewith et al., 2004; McLean et al., 2008; Quinlivan et al., 2014), the survey assessed whether participants had ever used or currently use a suicide risk assessment tool in their workplace, and to list these if applicable. Participants were then asked, if they did use a tool, whether this was a requirement in their current workplace, whether they identified it themselves to use, if it was found in the academic literature, if it was created 'in-house', if it was reliable and validated. Response options included 'yes', 'no', 'I don't know', and 'N/A'. If participants did not use suicide risk assessment tools, information was gathered assessing the barriers to using suicide risk assessment tools, for example, time constraints, lack of others using these in their workplace, having not considered using them before, lack of training, not knowing 'where to start', cynicism over their usefulness in individual patient care, considering them no better than clinical judgement, and cynicism over their ability to inform patient care. These were rated using 'agree', 'disagree' and 'N/A' response options.

Participants who did use suicide risk assessment tools were asked to respond to statements regarding what facilitates their use, e.g., whether an assessment tool helps them to make a decision, requirement as workplace policy, prior training, 'just doing it' without knowing why, other colleagues using tools, for protection in case of an adverse event, helping gain information that may otherwise be forgotten about, and perceiving them as helping to inform patient care. Participants were also asked how confident they felt in assessing for suicide risk using judgement alone, using a tool alone, and using a tool to inform judgement, each using a ten-point Likert scale (1 = least confident, 10 = most confident). The Likert scale allows the respondents to rate to what extent they agree with a certain statement by rating their level of agreement (Bryman & Bell, 2011). Participants then completed five questions asking their opinions on when and whether a

suicide risk assessment tool should be used, and the use of clinical judgement alone in assessing risk, again measured on a 10-point scale. The final section of the survey asked participants to indicate which risk factors for suicide they deemed to be important in their assessment using a ten point Likert scale (1 = no importance, 10 = greatest importance). These included: mental ill health, self-harm, alcohol misuse, drug misuse, chronic illness, personality, genetic predisposition, biological phases, work and unemployment, and poverty, and were based on the risk factor findings of the earlier McLean et al. (2008) review. Finally, participants were asked whether they would assess a child or adolescent differently to an adult, this was assessed as there are various suicide screening tools specifically designed for use with children and adolescents, for example the Suicidal Ideation Questionnaire (SIQ) (Reynolds, 1987), or the Suicide Behaviours Questionnaire-Revised (SBQ-R) (Osman et al., 2001).

5.2.5. Procedure

Data collection began in March 2016 and was completed by September 2016. The time-scale for data collection was wide ranging, due to the necessary ethics approvals needed for each NHS Scotland Health Board, which were granted separately (Table 5.2). Once approval for a Health Board was granted, a local contact for each emergency department within that Health Board was sought. This usually took the form of the Lead Consultant for the emergency department, or in some cases the Emergency Department Secretary. Once a local contact had been identified, information was sent to them via email describing the details of the study. If they were willing for their service to participate, a postal address for the local contact was attained and a survey pack was sent to them via post along with pre-paid return envelopes. A total of five surveys were sent to each site, as this would allow multiple clinicians in one hospital to complete the survey.

The local contact was emailed shortly after postage to ensure that they had received their survey pack. The local contact would then distribute surveys to their staff accordingly, for example by placing them in a staff area for clinicians to fill out in their spare time. The survey took approximately 20 minutes to complete. The clinician would then place the survey, along with the consent form in the pre-paid return envelope and post it back. A specific mail tray was organised at Edinburgh Napier University for the author, to ensure that the surveys could be easily and safely returned. When surveys had been returned from a specific emergency department, an email thanking their team for their cooperation was sent. If surveys had not been returned after six weeks, the local contact was sent an email reminder, as a systematic review found this to be the most significant way to improve response rates of postal surveys in health research (Nakash, Hutton, Jørstad-Stein, Gates, & Lamb, 2006). This process was implemented for each contactable emergency department until the end of August 2016.

5.2.6. Data Analysis

Given the nature of the study, the data were primarily analysed using descriptive statistics and frequency statistics for identifying current suicide risk assessment practices. Due to this, power analysis calculations to determine the sample size needed for the study were not carried out in this instance. Chi-square analyses and Mood's Median tests were conducted to compare differences between clinician practices and demographics, and clinician confidence scores and their practices. For data using a Likert scale (confidence and risk factor item ratings), median values were used, as within the medical literature it is recommended that Likert scale data should use the median as the measure of central tendency (Sullivan & Artino, 2013), as the arithmetical manipulation required to calculate the mean are inappropriate for these data (Jamieson, 2004).

To investigate the ways in which risk factors items were perceived by participants, a Principal Component Factor Analysis was carried out. This was to analyse distinct factors underlying suicide risk factors, and whether these align with earlier research into theorised risk factor categorisation by Bouch and Marshall (2005), such as static and dynamic risk factors, which were used to develop a Structured Professional Judgment suicide risk assessment (S-RAMM; Bouch & Marshall, 2003). Tests of statistical assumptions for Principal Component Factor Analysis including the Kaiser-Meyer-Olkin (KMO), to ensure that the sample size can produce reliable results, and the Bartlett's test of sphericity, to ensure that the data were suitable for data reduction were carried out and are noted in the results. Finally, to assess decision-making, a Fast-and-Frugal Decision Tree analysis was carried out on clinician rated important risk factors. A Fast-and-Frugal Decision Tree creates a set of hierarchical rules for making decisions based on very little information. The Fast-and-Frugal tree was chosen compared to other risk prediction methods such as logistic regression, as not only are Fast-and-Frugal trees just as robust, but they are also found to be extremely simple conceptually compared to other risk prediction methods (Laskey & Martignon, 2014). As Fast-and-Frugal Decision Trees are not hypothesis testing, a minimum sample size was not required for the analysis. The predictive sensitivity of Fast-and-Frugal Decision Trees vary little across both very small and large sample sizes, indicating that Fast-and-Frugal Decision Trees are robust (Martignon, Vitouch, Takezawa, & Forster, 2003). The significance values chosen were values of better than 5% ($p < 0.05$). The statistical analyses were performed using *SPSS for Windows version 20.0*. (IBM Corporation, New York, USA), and *FFTrees R package version 1.2.3* (CRAN, 2017). Any violations of assumptions for tests are noted in the results section.

5.3. Results

The results will be structured in line with the subsections of the survey. First, findings relating to clinician risk assessment practices across emergency departments will be presented. This will be followed by an exploration of the perceived barriers and facilitators of suicide risk assessment by clinicians. Following this, clinician confidence ratings will be presented, and perceived risk factors as assessed by clinicians. Finally, data exploring child and adolescent risk assessment practices will be explored.

5.3.1. Exploring Current Suicide Risk Assessment Practices

This section will present the data relating to current risk assessment practice across Scotland's emergency departments. These data are useful in informing the development of guidance for suicide risk assessment and the future development of risk assessment tools as knowing what is currently feasibly used and accepted in real practice by clinicians will allow the type of and format of any future tool development to be informed by current practices. It will also allow variations and similarities across practices to be identified.

Of the total included sample ($N = 51$), 35 (68.6%) participants stated that they currently use a suicide risk assessment tool in their workplace. The remaining participants ($n = 16$, 31.4%), did not currently use any suicide risk assessment tools in their workplace. Of the 35 participants who currently use suicide risk assessment tools in their workplace, 18 (51.4%) stated that it was a requirement in their workplace, 13 (37.1%) indicated that it was not a requirement, and the remainder did not know ($n = 4$, 11.4%). Of the total 17 emergency departments that were included in the research, 15 of these had more than one respondent. Clinicians working in seven emergency departments disagreed as to whether using a tool was a requirement in their hospital, indicating variation within the same emergency department. A chi-square analysis found no significant differences between

gender and suicide risk assessment method choice of either using a tool or not ($\chi^2 = 1.384$, $p = 0.239$). Differences in suicide risk assessment method between consultants and all other doctors could not be analysed as one cell (25%) had an expected count less than 5, and the minimum expected count was 2.83.

Although 35 participants reported using tools, only 32 of these participants named the tools that they currently use (Table 5.3). Three of the participants named more than one tool. Of those who named tools they currently used, the most commonly reported means of assessing for risk using tools was the use of locally developed tools and pro-formas ($n = 20$, 62.5%). A total of eight different locally developed tools and pro-formas were used across the sample. The SAD PERSONS scale was also frequently used ($n = 13$, 40.6%). One participant used the MSHR (Cooper et al., 2006), and another participant stated using the College of Emergency Medicine assessment (College of Emergency Medicine, 2013). Of the 15 emergency departments that had more than one respondent, nine (60%) showed that different participants within those emergency departments were using different suicide risk assessment practices, for example using locally developed tools, published risk scales or using clinical judgement alone.

Table 5.3

Risk Assessment Measures Currently in use

Published Risk Scales	Frequency
SAD PERSONS	13
Manchester Self-Harm Rule	1
Other Risk Assessment Tools in Use	
Locally developed tools and pro-formas	20
The College of Emergency Medicine Assessment	1

5.3.2. Barriers & Facilitators of Suicide Risk Assessment

This section will present the data relating to current risk assessment practice barriers and facilitators. This is to enable the understanding of what may limit or be able to facilitate suicide risk assessment in these settings. To explore barriers to the use of risk assessment measures, participants who did not use any suicide risk assessment tools ($n = 16$) completed a section on the survey which required to either agree or disagree with a number of statements as to why they do not use risk assessment measures, the results of which can be found in Table 5.4.

Table 5.4

Clinician Rated Barriers to using Suicide Risk Assessment Measures

	Agree (%)	Disagree (%)	Not Applicable (%)
...I do not have time to complete more forms.	6.3	81.3	12.5
...I have not been trained in using any suicide risk assessment tools.	75	25	-
...I don't think that they can tell you what you need to know about the patients as an individual.	31.3	56.3	12.5
...I don't think suicide risk assessment measures are any better than clinical expertise.	56.3	43.8	-
...I don't believe that suicide risk assessment measures can adequately inform patient care and management.	56.3	37.5	6.3

To explore facilitators for the use of risk assessment measures, participants who did use suicide risk assessment tools ($n = 35$) were also asked whether or not they agree with statements which can be found in Table 5.5.

Table 5.5

Clinician Rated Facilitators to using Suicide Risk Assessment Measures

	Agree (%)	Disagree (%)	Not Applicable (%)
...I feel that they help me make decision about patients.	84.8	15.2	-
...I am required to as part of my workplace policy.	48.5	45.5	6.1
...I was trained to and have carried this on as part of my practice.	50	50	-
...I feel that they will protect me if there is ever a disrupted case as I will have evidence to support my decision.	84.4	15.6	-
...I believe that suicide risk assessment measures help to inform patient care and management.	91.2	5.9	2.9

5.3.3. Clinician Confidence with Suicide Risk Assessment

The survey results of this section assessed clinicians' confidence in using a suicide risk tool alone, to inform their judgement, or using clinical judgement alone, to assess for the risk of suicide in patients. Participants were asked to rate on a Likert scale of 1-10 their levels of confidence in assessing for suicide risk. Median scores showed that participants self-rated confidence scores were similar for using a suicide risk assessment tool to inform their clinical judgement ($Mdn = 7, IQR = 3$), and using clinical judgement alone ($Mdn = 7, IQR = 3$). However, median confidence scores were lowest for using a suicide risk tool alone ($Mdn = 6, IQR = 2$). A Mood's Median test was conducted to assess whether there were differences in the levels of confidence for assessing risk between those who did use suicide risk assessment tools, and those who did not. Results found that there were no significant differences between those who did use suicide risk assessment tools, and those who did not, in levels of confidence in assessing for risk using clinical judgement alone ($\chi^2 = 0.277, p = 0.599$), or for using a suicide risk assessment tool to inform clinical judgment ($\chi^2 = 0.773, p = 0.379$). Furthermore, confidence scores for those who do and do not use risk assessment tools were not significantly different when

assessing a patient's risk of suicide when using a risk tool alone ($\chi^2 = 3.348, p = 0.067$), although this is significant at the 10% level, with those who did not use risk tools rating their confidence lower ($Mdn = 4.50, IQR = 4.25$) in comparison to those who do currently use risk tools ($Mdn = 6.00, IQR = 3$).

5.3.4. Exploring Clinicians' Perceptions of the Importance of Individual Risk Factors

This section of the results explores clinicians' perceived importance of suicide risk factors using median scores. A further Principal Component Factor Analysis was conducted to analyse distinct factors underlying suicide risk factors. Participants were asked to rate ten risk factors of suicide using a Likert scale to determine how important they considered each risk factor to be when assessing for the risk of suicide. Risk factors could be scored 1-10, with a score of one indicating no importance, and a score of ten indicating a risk factor of great importance. Table 5.6 displays the risk factors in order of the highest to the lowest median score of the risk factors. Overall, participants self-rated mental illness as the most important risk factor, with genetic risk factors rated as lowest importance.

Table 5.6
Median Values for Clinician-rated Risk Factors

Risk Factor	<i>Mdn</i>	<i>SD</i>
Mental Illness	8	1.40
Unemployment	8	1.57
Chronic Illness	7	1.50
Drug Misuse	7	1.71
Personality	7	1.73
Alcohol Misuse	7	1.75
Poverty	7	1.79
Self-Harm	7	1.84
Biological Factors e.g., hormonal	5	1.92
Genetics	5	1.94

To identify patterns and groupings across the risk factors measured, an Exploratory Factor Analysis using Principle Components Analysis was conducted on each of the risk factor items rated on the 10-item Likert scale. An examination of the Kaiser-Meyer-Olkin measure of sampling adequacy suggested that the sample was moderately favourable (KMO = 0.639), indicating that the data is suited to factor analysis, and a Bartlett's test of sphericity was significant ($\chi^2(45) = 234.56, p < 0.05$), indicating factor analysis was appropriate. The Keiser stopping criterion (Eigenvalues set to > 1) was used to identify the number of factors to extract. A Factor had to contain at least three loaded items to be considered valid. In addition, recent evidence suggests that a sample of approximately 50 is appropriate for exploratory factor analysis (de Winter, Dodou, & Wieringa, 2009).

The analysis yielded a three-factor solution. The Eigen value for the first Factor was 3.59, and explained 35.9% of the variance, the second Factor had an Eigen value of 1.71 and explained 17.1% of the variance, and the third Factor had an Eigen value of 1.32 and explained 13.2% of the variance. The three factor solution explained 66.2% of the

total variance. The three-factor solution was subject to a varimax rotation, due to the independent nature of the risk factors (Field, 2009), and only factor loadings greater than 0.5 were included, as these are considered to be practically significant (Hair, Black, Babin, & Anderson, 2010; Tabachnick & Fidell, 2007).

Four items (poverty, unemployment, drug misuse, and alcohol misuse) loaded onto Factor 1 (Table 5.7). These items can be categorised as dynamic risk factors of suicide (Bouch & Marshall, 2005) and are risk factors that are modifiable and which can change over time. As the four items were relating to social risk factors of suicide (Heikkinen et al., 1995), the factor was labelled 'Dynamic Risk Factors: Social'. Three items (genetic, biological, and personality risk factors) loaded onto Factor 2 (Table 5.7), and can be related to static (Bouch & Marshall, 2005) or unchangeable risk factors of suicide. This factor was labelled as 'Static Risk Factors'. Three items (mental health, self-harm and chronic illness risk factors) loaded onto Factor 3 (Table 5.7), and were categorised as dynamic and modifiable risk factors of suicide. The items related to health and concurred with the overarching health problems theme in the earlier risk factor systematic review (Chapter 3), and was therefore labelled as 'Dynamic Risk Factors: Health'. Overall, these analyses indicate that three distinct factors were underlying clinician responses to suicide risk factors.

Table 5.7

Factor Loadings for Principal Component Analysis with Varimax Rotation of Clinician Perceived Risk Factor Importance

Risk Factors	Dynamic Risk Factors: Social	Static Risk Factors	Dynamic Risk Factors: Health
Poverty	0.85		
Drug Misuse	0.81		
Unemployment	0.81		
Alcohol Misuse	0.72		
Genetics		0.77	
Biological Factors e.g., hormonal		0.76	
Personality		0.63	
Mental Illness			0.73
Self-Harm			0.61
Chronic Illness			0.56

Factors were analysed for reliability using Cronbach's Alpha, with the following findings: Dynamic Risk Factors: Social ($\alpha = 0.85$); Static Risk Factors: ($\alpha = 0.63$); and Dynamic risk factors: Health ($\alpha = 0.50$). Reliability was considered good when $\alpha = 0.6$ or greater, indicating that all but Dynamic Risk Factors: Health demonstrated good reliability. Within this Factor, scale reliability decreased when any single item was removed, and so the three item-structure was best, but participants responded less consistently within this scale than within the other two. In addition to the pre-identified risk factors' ratings, above, participants were asked to identify any additional factors that they would use when assessing risk for suicide. Thirty-three participants identified 23 additional factors, as shown in Table 5.8. Some factors were suggested by more than one participant.

Table 5.8

Frequencies for Additional Risk Factors Identified as Important by 33 Participants

Risk Factors	<i>N</i>	%
Previous Attempt	13	39
Age	12	36
Male Gender	11	33
Lack of Social Support	10	30
Nature of Current or Previous Attempt	7	21
Social Isolation	6	18
Evidence of Planning	6	18
Crisis or Extreme Change of Circumstances	5	15
Access to Means	4	12
Bereavement	3	9
Future Planning	3	9
Interaction at Consultation	2	6
Protective Factors	2	6
Intimate Partner Violence	1	3
Relationship Problems	1	3
Impulsive/Not Planned	1	3
Cultural or Ethnic Background	1	3
Personality Disorder	1	3
Chronic Pain	1	3
Acute Mental Illness	1	3
History of Substance Misuse	1	3
History of Detention Under Mental Health Act	1	3
No Previous Contact with Doctor about Suicide	1	3

5.3.5. Examining Decision Making Style and Risk Factor Use

To identify whether there were differences in decisional style between those participants who have used a suicide risk assessment tool in the past ($n = 38$) compared

to those who had not ($n = 12$), and to identify whether the participants overall used a fast-and-frugal style of decision making, as was discussed in Chapters 1 and 2, an analysis of decision style was carried out using Fast-and-Frugal Decision Tree modelling. This analysis was carried out using the statistical software package *R*, and the in-software package ‘*FFTrees*’ which was downloaded from the *Comprehensive R Archive Network* (CRAN). This package allows the user to identify underlying decision trees within their data, using as many scales decision cues (in this case, the ten Likert-rated risk factors from the survey) and a binary dependent variable, which can represent either a group or a decision (in this case, whether the clinicians had or had not used a risk assessment tool in the past). The package identifies all possible options for potential underlying decision trees and compares these to Linear Regression and other predictive models to identify the strongest fast-and-frugal tree solution (Figure 5.1).

In the current analyses, the ten risk factor items which participants rated were entered as the decision cues. The target dependent variable was whether the participant had ever used a suicide risk assessment tool in the past. The *FFTree* package identified seven potential solutions (trees) to describe the decision making processes of the participants. ‘Tree 4’, presented in Figure 5.1, was the most representative for the data, with satisficing sensitivity and specificity, as demonstrated on the bottom right hand corner of Figure 5.1. Of the total sample ($n = 54$), four were excluded due to missing data, leaving a sample of 50 on which the analysis was based. The optimal fitting solution (Tree 4) indicates that those who had used a suicide risk assessment tool in the past considered Self-Harm to be the most important cue or risk factor to consider before coming to a decision, with 20 participants falling into this category and one participant registering as a ‘miss’ within the model. In contrast, for those clinicians who had not used a suicide risk assessment tool, more cues were needed, with these being Chronic Illness (satisficing six

participants and registering nine False Alarms), and Alcohol Misuse (satisficing three participants and registering four False Alarms). The final group of participants fell into both categories (tool users and non-users), with the final cue needed to make a decision being Drug Misuse. Among the tool users, five correct ‘hits’ and one ‘miss’ was present, and among the non-tool users only one hit was present.

The bottom left box within Figure 5.1 indicates the correspondence between the decision tree’s performance and the true data itself. *Hit* (hit rate) and *Cor Rej* (Correct Rejections) correspond to correct decisions. *Miss* and *False Al* (alarms) represent incorrect decisions. Seventy per cent (35/50) of the data were correctly represented, indicating reasonable performance for the model. The central bottom column represents performance against other metrics. Of importance are the *sens* (sensitivity), *spec* (specificity), *acc* (accuracy), and *AUC* (Area Under the Curve) columns, which indicate reasonable performance (all 70% or greater). The bottom right hand box indicates the performance of the seven identified Fast-and-Frugal Trees (in green; Tree 4 optimal) against other automatically calculated metrics in terms of sensitivity and specificity. As before, performance was reasonable, with comparisons to a Linear Regression model (*LR*; blue) yielding stronger sensitivity and specificity. A Linear Regression model was not carried out and reported separately within the thesis as the sample size was not appropriate to allow sufficient power or conclusions to be drawn.

These findings demonstrate that both groups of participants, whether they had used a risk assessment tool or not, were using frugal decisional styles (speed was not measured, and so it would be inappropriate to comment on speed of decisions), with the majority of those who had used a risk assessment tool being satisfied to make a decision based on the importance of one item: Self-Harm. Those who had not used tools required

more cues (maximum 4 out of a possible 10 items) to reach a decision threshold, though this was still far below the ten items presented.

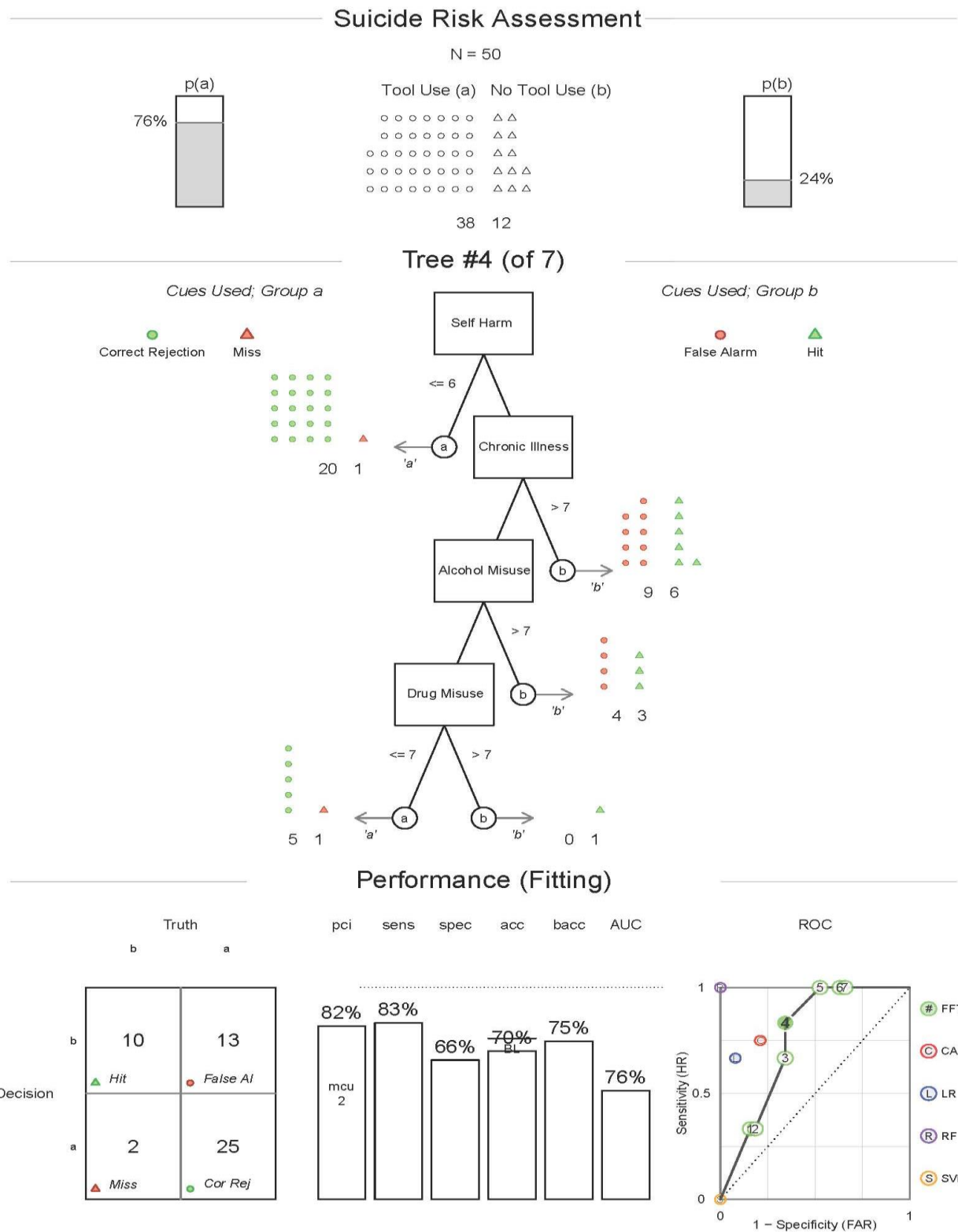


Figure 5.1. Decision Making Tree Demonstrating Cue (Risk Factor) Considerations for Participants who have used Suicide Risk Assessment Tools (Group ‘A’) and those who Have not (Group ‘B’).

5.3.6. Child & Adolescent Suicide Risk Assessment

Finally, participants were asked whether they would assess a child or adolescent differently for suicide risk compared to the adult population. Three participants stated that they would not assess a child or adolescent for risk. Of the remaining participants, 37 (72.5%) stated they would assess a child or adolescent differently, and 11 (21.6%) stated that they would not. In an optional open response question asking clinicians how they would assess a child or adolescent differently, 15 participants noted they would have a lower threshold for admission to psychiatric services for children and adolescents, with one participant stating that they would always admit to Child and Adolescent Mental Health Services (CAMHS). The assessment of different risk factors for children were mentioned by 12 participants, for example, home and social relationships; bullying; education. Nine of the participants indicated that did not know, or did not think that there was a suicide risk assessment tool for children. One participant simply wrote that they were “less confident in assessing children/adolescents with suicidal ideation”.

5.4. Discussion

This study aimed to explore current suicide risk assessment practices in emergency departments and clinician perceptions of the importance of different risk factors within the assessment decision making process. Given that 25% of those who die by suicide have attended an emergency department in the 30 days before their death (ISD, 2014), assessing current practice to potentially improve risk assessments and practices is imperative. In this Scotland-wide study of seventeen emergency departments, it is clear that there is wide variation in current suicide risk assessment practices between hospitals and between clinicians working within emergency departments. Although, 69% of those surveyed use suicide risk assessment tools to assess for suicide risk, there is a wide

variation in the type of tools being used. This echoes prior research that found little consistency in suicide risk assessment practice following-self harm in hospitals in England (Quinlivan et al., 2014). Of the emergency departments that had more than one respondent within the same department, almost half disagreed as to whether the use of a suicide risk assessment tool was a requirement or not. This agrees with prior research that found variation in suicide risk assessment guidelines for emergency departments (Bennewith et al., 2004; SAMH, 2012).

This apparent variation in practice contradicts the guidelines set out by the NHS Scotland Quality Strategy (2010), which outlines quality of care indices, such as reducing variation, as a key component to improving the patient experience. This is not just a problem in emergency department settings, as research has found variations in mental health diagnoses across primary care practices (Mayne et al., 2016). As evidenced by earlier chapters (Chapters 3 & 4), reasons for suicidal ideation and behaviours are individualistic and multi-faceted, such that at least some variation in practice is to be expected. However, the results of the current study found that clinicians disagreed on whether certain assessment practices were a requirement in their emergency department, indicating a need for clearer departmental guidelines at least.

The majority of the tools being used by participants were locally developed risk assessment tools and pro-formas, which are not recommended for use (The Royal College of Psychiatrists, 2010), due to their lack of evidence base. However, in the absence of any evidence-based, and clinically meaningful suicide risk assessment tools, this may have been considered the best option by clinicians. The SAD PERSONS scale was found to be the most commonly used published risk scale in this study. Historically, SAD PERSONS has been found to have a positive impact on performance in evaluating and interviewing

suicidal patients (Patterson et al., 1983). SAD PERSONS was first developed in 1983 to assess 10 major risk factors, and has since experienced little modification (Saunders et al., 2014). Given the findings of the earlier systematic review of risk factors presented in Chapter 3, it can be suggested that risk factors have evolved since the early 1980's, which the SAD PERSONS scale does not reflect.

Furthermore, recent research has consistently criticised the poor predictive ability of the scale for future suicide attempts in emergency departments (Bolton et al., 2012). A recent review concluded that the SAD PERSONS scale has very low sensitivity (15%) when assessing psychiatric emergency care patients for suicide attempts, as most people who make future suicidal acts are not identified (SBU, 2015). Despite the recent body of evidence to suggest its lack of usefulness in assessment, the current study shows that SAD PERSONS is still widely used in risk assessment in emergency department practices, which coincides with prior findings that SAD PERSONS is in use in UK emergency departments (Cracknell, 2015). The NICE guidelines suggest that risk assessment tools and scales should not be used to predict future suicide or repetition of self-harm because the modest predictive value of those currently available makes them of limited usefulness in clinical practice (Kendall et al., 2011). However, as the role of the clinician is not to predict risk, but rather to assess and manage risk, and given the use of some form of tool by participants in this research, this may suggest that an evidence-based but clinically meaningful tool may be desirable.

Conversely, for those who did not use risk assessment tools, clinical judgement may have been implemented in the absence of validated objective tools (Simon, 2008). Approximately one third of the participants in this research did not use suicide risk assessment tools in their practice and used clinical judgement alone to assess for risk.

Clinical judgement is often informed by experience and the evidence base, however it can also be subjective and intuitive (Bouch & Marshall, 2005). Prior research has found considerable variability in clinical decision-making when assessing for suicidal risk (Regehr, LeBlanc, Bogo, Paterson, & Birze, 2015). Moreover, a meta-analysis has compared clinical predictions made by mental health practitioners and statistical approaches, and found greater accuracy for statistical methods (Ægisdóttir et al., 2006). However, the aim of risk assessment is primarily to assess and manage risk, rather than predict, and recent educational models are aiming to redirect clinician attention away from prediction-orientation practice in suicide risk assessment, to prevention-orientated judgements (Pisani, Murrie, & Silverman, 2016).

Over 80% of those who used clinical judgment alone in the current study felt that they did have time to complete more suicide risk assessment forms. However, prior research has found that the use of physician and patient time has been found to be a barrier in offering services for mental health within emergency departments (Delgado et al., 2011). This indicates that if a robust, validated risk assessment tool was developed, clinicians in the current sample would feel they have time to use it. Taking these findings into consideration in conjunction with the poor fit of predictive scales to emergency department practice, and the fact that no Structured Professional Judgement tools were used by participants, it is clear that a new approach is required; one that considers existing facilitators and barriers to assessment in emergency departments, takes into account clinical judgement and decision-making, and the ways in which individual risk and protective factors are used and considered by clinicians working in emergency departments. Hence, bringing together knowledge from applied health, decision science, and clinicians' tacit knowledge and understanding of suicide risk assessment presents a novel opportunity to explore a new approach to this issue.

The remainder of this discussion will explore the facilitators, barriers and confidence findings of the current study, and the findings relating to clinicians subjective ratings of risk factors to gain a better understanding of applied, feasibility issues and tacit knowledge and understanding, with the proceeding chapter (Chapter 6), exploring these findings in greater depth. In terms of barriers and facilitators, over 70% of clinicians in the current study who did not use suicide risk assessment tools agreed that they had not been trained in using them. Furthermore, even of those who did use suicide risk assessment tools, 50% stated they had not been trained in their use. This aligns with prior findings that 80% of emergency department clinicians desired more training in how to assess for suicide risk (Petrik, 2014). Previous research has shown that providing specific training for emergency department staff in the use of mental health triage scales, leads to increased confidence in using the tools and to increased uptake of those tools in practice (Devlin, McKillop, & O'Connor, 2016; Stuhlmiller, Tolchard, Thomas, de Crespigny, & King, 2004). Thereby, increasing training in this area can increase clinician confidence in conducting assessments.

Confidence within risk assessment and decision making is important, as clinicians, while not necessarily making predictions during an assessment, are still making judgements about the likelihood of harm if no intervention is put in place, and this confidence should be high for ethical and moral reasons (Murray & Thomson, 2010). For example, if a clinician's confidence in their judgement is low, it would not be ethical to make treatment (or choose no treatment) options. Unfortunately, under conditions of uncertainty such as when carrying out suicide risk assessments, the clinician has no choice but to make a decision. One possible way to increase confidence and accuracy is through the use of a risk assessment tool (McNeil, Sanburg, & Binder, 1998). However, clinicians in the current study rated their confidence lowest when using a risk tool alone to assess

for the risk of suicide. Recent research has discussed the current challenges faced with assessing for the risk of suicide using either risk assessment tools or using risk factors alone, and encourage the abandonment of risk prediction and suggest focusing on engagement with the individual patient, their specific problem and circumstances (Mulder et al., 2016). Murray (2016) goes further in suggesting suicide risk assessment perhaps should be abandoned, while making services safer by providing effective pre-discharge care planning and discharge follow-up. However, risk assessment may be invaluable to inform risk management, whether this is led by clinical judgement or risk assessment tools, and this should be considered.

The survey asked participants to rate the importance of ten on risk factors that they consider when assessing for risk of suicide which were based on the risk factor findings of the earlier McLean et al. (2008) review. Among the top rated were, mental illness, drug misuse, alcohol misuse, and personality. Schreiber, Culpepper and Fife (2015) recently synthesised the literature relating to suicide risk factors in adults and concluded that psychiatric disorders, hopelessness, high impulsivity and alcohol and substance abuse are major risk factors of suicide. This concurs with the findings of this thesis. Chang et al. (2016) recently conducted a meta-analysis of biological risk factors for suicidal behaviours which included hormones and genetic risk factors. Three prediction studies were included in a meta-analysis of hormone changes and found no significant effect of hormones on suicide attempts ($OR = 2.08$, 95% CI 0.66–0.657). Similarly, of thirteen gene prediction studies, there was no significant effect of genetics on suicide attempts ($OR = 1.30$, 95% CI 0.90-1.88), and on completed suicides ($OR = 0.73$, 95% CI 0.43-1.23). This is an interesting finding, as clinician participants in the current sample rated biological and genetic risk factors as least important. These findings indicate that

clinician's perceived importance of risk factors matches the literature, and this should be taken into consideration during further development of suicide risk assessment.

Participants also had the opportunity to identify risk factors which they felt were important, the results of which were displayed in Table 5.8. A number of identified risk factors already related to categories in the risk factors ranked by importance section. For example, clinicians discussed certain types of mental illness (e.g., personality disorder, acute mental illness, or a history of mental illness). Interestingly, although the earlier risk factor systematic review in this thesis (Chapter 3) identified that childhood maltreatment including sexual abuse, physical or emotional abuse and neglect increases the risk of suicidal ideation, suicide attempts and completions, clinicians did not identify this as a risk factor that they considered within the additional risk factors free text response area. This could potentially be because many widely used suicide risk assessment tools (Quinlivan et al., 2014) do not address this as a risk factor (e.g. SAD PERSONS, or the SIS), thus are not assessed during an assessment in situations where such tools are used; and the majority of the clinicians in the current study reported using some form of risk assessment measure. It is also not highlighted within the older McLean et al. (2008) review, from which the items in the survey for the current study were drawn, and so clinicians may have been unaware of this as an empirically identified risk factor even if they were up to date with the review literature in the area, given that McLean et al.'s (2008) report is easily accessible and heavily cited.

Recently, NHS Education for Scotland (2017) published the Transforming Psychological Trauma framework, which is designed to increase the understanding of trauma and its impact, such as poorer mental health. The framework provides guidelines for workers with direct and frequent contact with people who have been affected by

trauma, including the need to protect those who have been affected by trauma from harm, which includes having relevant risk screening and assessment tools. This trauma informed care signifies a need to update medical literature in relation to abuse and suicide, as well as clinician knowledge surrounding risk factors that could have an impact, and are important to consider during suicide risk assessment. It may be that with the publication of such frameworks and collation of the literature in academic formats, in time more clinicians will become aware of the importance of assessing childhood abuse and trauma in relation to suicide risk.

To identify underlying structure beliefs about the risk factors, a Principal Component Factor Analysis was conducted, and this identified three distinct factors underlying clinician responses to suicide risk factors. These included dynamic risk factors which were related to social factors e.g., unemployment, poverty, and drug and alcohol misuse; dynamic risk factors which related to health issues e.g., chronic illness, mental illness, self-harm, and alcohol misuse; and static risk factors e.g., genetic, biological and personality factors. These factors align with previous categorisation of suicide risk factors from the earlier systematic review (Chapter 3), from prior research (Butler, 2014), and with categories that have been developed into suicide risk assessment (Bouch & Marshall, 2005), indicating the validity of their inclusion in suicide risk assessment tools in the future.

Furthermore, the factors also align with a fast-and-frugal approach, using the Take-The-Best Heuristic approach (Gigerenzer & Goldstein, 1996), particularly as the factors concur with the clinician rated risk factor importance, with social and health factors rated more highly than static risk factors relating to genetic and biological risk. This type of decision making has been previously developed into healthcare assessments. Green and

Mehr (1997) developed a fast-and-frugal decision tree to replace the Heart Disease Predictive Instrument, and allowed decisions to be made faster with limited information. However, the results of the current factor analysis should be interpreted with caution, as the analysis included a limited number of participants ($n = 51$), which may impact the generalisability of the results, as research finds that larger sample sizes with Principal Component Analysis produce the best outcomes (Osborne & Costello, 2004). There is still some debate around what an adequately powered sample size would require (Lingard & Rowlinson, 2006), with some research recommending three to six items per variable, with a minimum of 250 responses; although recent evidence suggests that approximately 50 responses is appropriate for factor analysis (de Winter et al., 2009). Lingard and Rowlinson (2006) further note that small samples can lead to erroneous conclusions being drawn, and therefore the results of the current study should be interpreted with this in mind, and should be considered as part of the whole thesis. The findings will be discussed in more depth in light of the entire thesis' findings in the penultimate and final chapters, after triangulation of the findings has taken place.

An additional consideration when interpreting the current factor analysis findings is the lack of inclusion of some of the identified risk and protective factors identified within the current thesis' reviews, such as childhood sexual exploitation. As already discussed, Mclean et al.'s (2008) was used to generate the risk factors due to time limitations. Some of the newer, emerging factors identified within the current thesis were therefore not rated, and this is a limitation. However, while it would not be possible to post-hoc discuss where these emergent risk factors may fit into the factor structure of the current analyses, this limitation is somewhat negated through the use of triangulation later in this thesis. The following thread method of triangulation is applied to the findings

across the current thesis and the themes not carried through from the two reviews to the current study will be picked up again and discussed in this later chapter.

In concordance with previous research that has utilised fast-and-frugal decision tree modelling in mental health assessments (Jenny et al., 2013), a fast-and-frugal decision tree model was built to explore the current data in more depth. This indicated that clinicians who currently use tools are satisfied in making a decision about risk with the use of one cue (self-harm; dynamic risk factor relating to health). Non-tool users required up to four cues, with the additional cues being: chronic illness (dynamic health risk factor), alcohol and drug misuse (dynamic social risk factors). These findings indicate that clinicians are using fast-and-frugal processes to form decisions about suicide risk, and that tool users are more frugal in their information use during this process. However, what this model cannot tell us is efficacy and accuracy of their risk assessments using these processes, or if these are the actual processes that they would use in practice. More developmental research would be beneficial to identify whether tools could be developed which could exploit this naturalistic decision making process.

Clinicians in the current study were surveyed regarding their experiences of child and adolescent suicide risk assessment. Over 70% of the participants involved in the current study stated that they would assess a child or adolescent in a different way from an adult. The main difference cited was having a lower threshold for referral onto psychiatric services (CAMHS). Furthermore, participants cited different risk factors including social relationships and bullying. This aligns with research found in Chapter 3, discussing the increase in cyberbullying among adolescents, and the increase in risk of suicide this has. Participants also mentioned that they did not know of specific suicide risk assessment tools designed for children and adolescents, again highlighting a lack of

training which could be addressed. For instance, the SIQ, has been found to be appropriate for use with adolescents, and correlates clinical judgment and suicidality (Boege, Corpus, Schepker, & Fegert, 2014). However, this research was only conducted with 31 patients, therefore further research with larger sample sizes may be needed to validate results.

5.4.1. Strengths & Limitations

To the author's knowledge, this is the first study of its kind directly assessing clinician's suicide risk assessment practices in emergency departments. Similar prior studies focused on exploring suicide risk assessment practices following episodes of self-harm (Quinlivan et al., 2014), whereas the current study focused purely and more broadly on suicide. Furthermore, whereas prior studies investigating this topic surveyed key emergency department staff (Bennewith et al., 2004; Quinlivan et al., 2014), the current study allowed any clinician working in the emergency department who has previously assessed for suicide risk to participate, allowing for an across practice picture of current assessment.

Moreover, the research was conducted cross-nationally, and the study received an adequate response rate (48.2%), which was similar to prior questionnaire studies conducted in emergency departments (Cook, Dickinson, & Eccles, 2009; Cook et al., 2000). This is a strength of the research as it may provide a clearer picture of current 'on the ground' practice. Due to the use of a national sample of clinicians, it is likely that the findings can be generalised to all emergency departments in Scotland, and perhaps to the rest of the UK. However, participants were able to self-select their participation in the study, which could potentially be a limitation of the research, as it may be that those with an interest in emergency psychiatry, suicide risk assessment, or unique experiences of suicide risk assessment, completed surveys.

Despite the cross-national sampling strategy, the use of convenience sampling could be considered a limitation. This sampling method allowed a purposive target sample to be identified (i.e., clinicians who engage in suicide risk assessment within emergency departments as part of their work-a-day role) and allowed a relatively fast and flexible recruitment process to engage. However, the self-selection and lack of random sample or fully national sample would have been ideal, but impracticable within the time limits of a doctoral study. The recruitment ran for 10 months with regular reminder prompts being sent via email and telephone call. The ability to collect data from all emergency department staff would have been the ideal focus, and perhaps using face-to-face data collection with the researcher being based within a department to ask people to participate could have facilitated this. However, the constraints of ethical and R&D approvals removed this option. Further, a random sample would have removed the risk of self-selection bias and responses would be wider than that of 'motivated participants'. However, it would be very likely that even fewer prospective participants would respond to this, making the limitations of a low sample size even more apparent than it is at present.

A potential limitation of the survey itself is that emergency department clinicians were not involved in the direct design of the survey. The survey development was instead based on prior research (Bennewith et al., 2004; McLean et al., 2008; Quinlivan et al., 2014), and these prior pieces of research also did include clinician authors. The involvement of clinicians at the development stage may have included different questions and thus results. To alleviate any impact of this in future studies, a stakeholder advisory group consisting of clinicians could perhaps be consulted. Also, the study protocol was not published online prior to conducting the research, as this was not considered at the time of the study. However, upon reflection, the publishing of the protocol may have

improved the rigor of this study by allowing feedback of the study through peer review, as well as potentially increasing clinician interest and, thus, the sample size.

The study also has a lack of nurses' perspective. Only four nurses (8%) completed surveys, and given the number of nursing staff in emergency departments this figure is low. Future research should endeavour to understand nurses' experiences and practices of suicide risk assessment. A further limitation of the study is that some of the earlier identified risk factors from the risk factor systematic review (Chapter 3) were not included in the risk factor rankings that clinicians were able to rate importance e.g., childhood maltreatment, sexuality, and parental suicide. This was due to the risk factors for the questionnaire being devised from the earlier McLean et al. (2008) review. However, it would have been beneficial for clinicians to rank those additional factors highlighted within the current thesis' reviews. Clinicians were able to write-in any additional risk factors which they assess for; however, childhood maltreatment, sexuality and parental suicide were not mentioned. The limitation of this is being unable to assess whether these risk factors would be useful to include in any future development of suicide risk assessment.

Finally, service users were not involved in this study. This could be considered as a limitation of the study. Service user experiences of current suicide risk assessment practices would be beneficial for example, to assess whether service users felt they received an adequate assessment when presenting at the emergency department, whether they felt the assessment was a suitable approach, and what approaches they think were likely used. Their interpretation of the data may also add insight as their lived experiences may not equate to what clinicians report. However, as this thesis is clinician focused, service users were not involved at this stage and this is therefore an area for additional

exploration. Additional exploration of service user rated important and clinician rated important risk factors could be insightful in focusing down on commonalities needed to strengthen and direct guidelines or risk assessment tools; differences could highlight areas for further research to identify why these differences exist and whether academics and clinicians ought to engage more at the risk factor level with service users to develop better guidelines. It would also potentially indicate new or emergent risk factors not yet featured or focused upon in the literature.

5.4.2. Practical Relevance

Assessing suicide is an inexact science at best (Lofchy, Boyles, & Delwo, 2015). Assessing the risk of suicide is an extremely difficult and complex task when applied to the individual (Cochrane-Brink, Lofchy, & Sakinofsky, 2000), and cannot be predicted (Dawes, 2008). There are significant gaps in our knowledge about short-term prediction of suicide risk (Glenn & Nock, 2014). Therefore, a guiding tool or flexible screening measure to assist in managing risk may be more applicable to emergency settings. Furthermore, a standardised approach across practitioners and practices may improve the therapeutic relationship, as patient satisfaction is a critical in the effectiveness of treatments the suicidal patient receives (Allen, Carpenter, Sheets, Miccio, & Ross, 2003). Based on the variability of suicide risk assessment practices and the variation in awareness of current guidelines within emergency departments, clearer evidenced-based guidelines for suicide risk assessment are required, particularly as evidence suggests development of clinical guidelines can improve practitioners' confidence in assessing and managing clinical risks (Delgadillo et al., 2014). Furthermore, increased training in suicide risk assessment may improve confidence and uptake of any validated assessment tools (Delgadillo et al., 2014; Stuhlmiller et al., 2004).

5.4.3. Conclusions

To the author's knowledge, this is the first study investigating clinician's suicide risk assessment practices in emergency departments across Scotland. There is substantial variation in clinician suicide risk assessment practices in emergency departments across Scotland, with around two-thirds of clinicians using a variety of empirically developed and locally developed tools, and a third of clinicians not using suicide risk assessment tools in their practice. Furthermore, there is variation in clinician's assessment practices within emergency departments. Now variation in practice has been established, future research should focus on gaining in-depth views from clinicians regarding their experiences of assessment, which will be explored in the proceeding chapter (Chapter 6). Qualitative exploration will provide a unique insight into clinician practice, and can be used to develop bottom-up, clinician informed best practice guidelines that can inform the development of nationally agreed standards for suicide risk assessment.

5.4.4. Chapter Reflections

The current chapter conducted research that is novel to both Scotland and the UK, as this is the first study of its kind to directly assess clinician practices of suicide risk assessment in emergency departments. However, during the study, a greater sample size of clinicians would have been preferred, as this would have allowed the Principal Component Analysis to have been more robust and would have allowed a wider and more generalisable picture of suicide risk assessment practice to be established. Prior to commencing the study, extensive discussions were held with the supervision team about who to ask to complete the survey: clinicians or managers of the departments. It was considered that managers may have an oversight of the processes that should be in place and followed. However, this was problematic in two ways: first, the sample size would

have been even more limited, though perhaps more departments would have participated due to the department rather than individual focus; second, while managers could inform about what policy is and should be in place and practiced, these do not always match real practice, and the nuance of different clinician's experiences would have been lost.

Ways to improve sample size could have included making more attempts to contact emergency department clinicians via the emergency department contact and to do this in a more face-to-face manner. However, despite multiple attempts to communicate to emergency department contacts, the thesis was time limited, and therefore contact attempts had to draw to a close. Another potential recruitment strategy may have been to conduct on-site recruitment at emergency departments. However, this would have required further extensive ethical approval for every NHS health board, which again would have impacted the already time-limited research. Pragmatic considerations therefore needed to be applied to complete the study in a timely manner inside the constraints of a PhD.

Section 5.3.4 of the current chapter explored clinician perceptions of the importance of risk factors. Clinicians were asked to rate the importance of ten risk factors. These were initially devised from risk factors that were found in the McLean et al. (2008) review, and due to time implications of ethical approval procedures did not include any of the emerging risk factors (e.g., LGB individuals) found in the earlier risk factor systematic review conducted in this thesis (Chapter 3). This was, however, mediated with an opportunity for clinicians to write-in any risk factors that they deemed to be important (Table 5.8), and the qualitative interview study to follow (Chapter 6) could discuss any other identified risk factors, which reinforces the need for the qualitative study. Ideally, though, upon reflection and had more time been available, the risk and protective factors

emergent from the two reviews in the current thesis would have been incorporated rather than those derived from the earlier review paper. While there is overlap between those risk factors and the free text, this can be considered as a limitation in the study.

Finally, service user experiences of current suicide risk assessment practice would also have been welcomed in this study. Particularly to assess how patients feel when being assessed using differing methods and whether certain approaches are favoured, for example a more formal suicide risk assessment or a more informal discussion with a clinician. However, given the already ambitious range of the current thesis, and that it was clinician focused, this was considered to be out of the scope of this thesis. In combination with the findings of the current thesis, though, if further developing guidelines or measures of suicide risk, this important element of considering the effect of the assessment on the person must be incorporated to ensure that a person centred and service-user-acceptable measure/guideline results.

CHAPTER SIX: Suicide Risk Assessment Practices across Emergency

Departments in Scotland: The Clinicians' Perspective

6.1. Background

Following on from Chapter 5, further in-depth exploration of suicide risk assessment in emergency departments is needed, in which qualitative approaches should be utilised. At present, there is a dearth of qualitative research in the healthcare literature (McKibbon & Gadd, 2004; Weiner, Amick, Lund, Lee, & Hoff, 2011). The paucity is not only limited to qualitative research exploring experiences of patients (Gordon, Sheppard, & Anaf, 2010; Nairn, Whotton, Marshal, Roberts, & Swann, 2004), but also to qualitative research with healthcare providers (Weiner et al., 2011). Gagliardi and Dobrow (2011) found that less than 6.4% of empirical research published in health services and policy research journals was qualitative in nature. This figure decreased to 0.6% for general medical journals. Furthermore, research suggests that hospital physicians assess the scientific accuracy of quantitative research more highly than qualitative research, however they appreciate qualitative research for its relevancy to their practice (Johansson, Risberg, & Hamberg, 2003).

Despite these findings, qualitative research in healthcare has the ability to directly inform practice (Ailinger, 2003; Meadows-Oliver, 2009); and according to Miller (2010), qualitative findings have demonstrated independent instrumental utility in leading to key changes in clinical practices. Moreover, Curry et al. (2009) recommends the use of qualitative research methods to provide a unique and critical contribution to outcomes research in healthcare. Also, mixed methods research, and triangulation approaches are more commonly being utilised in health and health services research (Morrison & Joy, 2016; Tariq & Woodman, 2013; Wolf, Perhats, & Delao, 2015). Barroso and Sandelowski

(2001) used qualitative techniques in the development of an instrument for fatigue management in persons with HIV/AIDS, and note the importance of using qualitative techniques in all phases of the process of instrument utilisation.

In terms of risk assessment, qualitative research has previously been used to inform the development of risk assessment tools in the violence risk assessment literature. For example, to improve violence risk management in institutional settings, Cooke and Johnstone (2010) used a three-step method to develop the PRISM assessment tool. The first step involved conducting a systematic review of relevant research; the second step involved the collection of qualitative information; and the final step involved developing a set of guidelines based on the prior two stages. During the collection of qualitative information, semi-structured interviews were conducted to elicit staff and prisoner views on situational risk factors to institutional violence within the prison setting (Cooke, Johnstone, & Gadon, 2008). The authors note that by using a qualitative methodology, a greater understanding of the nature of associations between variables was obtained. This is an example of how qualitative research methodology has been used successfully to inform practice, in particular to guide the development of risk assessment tools.

At present, little is understood regarding current suicide risk assessment practices in emergency departments across the UK. The previous chapter (Chapter 5) has helped to bridge the gap in the literature using quantitative methods. The results of the preceding chapter identified that there is substantial variation in emergency department clinicians' assessment for suicide risk in Scotland, with around two-thirds of clinicians using a variety of empirically developed (e.g., SAD PERSONS scale) and locally developed tools, and a third of clinicians not using suicide risk assessment tools at all in their practice, and relying on clinical judgment alone. Although these findings update the

scarce quantitative literature on suicide risk assessment practices in UK emergency departments, there is an absence of qualitative in-depth research investigating the clinician experience of suicide risk assessment in emergency departments in the UK, and further afield (Macleod, 2013). Prior qualitative research is often focused on the negative emotions when working with patients who present with suicide-related concerns (Petrik, Gutierrez, Berlin, & Saunders, 2015). Thus, there is extremely limited research at present directly assessing clinician's experiences of suicide risk assessment in their practice, and to the author's knowledge, no such research has been conducted with emergency department clinicians in the UK. Further investigation into this topic is crucial, particularly as it is well established that over 35% of those who die by suicide attend emergency departments in the year prior to their death (Da Cruz, 2011; Gairin et al., 2003), and in Scotland approximately 25% of those who die by suicide attend an emergency department in the three months prior to their death (ISD, 2014).

Recently qualitative research was undertaken with UK GPs, exploring their views of suicide risk assessment with young people aged 14 to 25 years old (Michail & Tait, 2016). A total of four focus groups and one in-depth interview were conducted, with challenges in assessment being found to be a core theme. For example, GPs felt ill-equipped to assess and manage suicide risk effectively in young people and voiced their concern about their ability to distinguish between signs indicating imminent suicide risk from behavioural changes as part of adolescence. To address challenges, GPs acknowledged the need for specialist education to improve their knowledge and clinical skills in the assessment and management of suicide risk in young people. Some GPs also supported the use of a mutually agreed validated suicide risk assessment tools that would facilitate the accurate identification of those at risk and inform decision-making about their management. Although, GPs reported serious concerns about the usefulness and

acceptability of such a tool. For example, there were concerns about its predictive validity and its use leading to false positives and false negatives. However, GPs did support the use of a guided decision-making tool that would facilitate a standardised way of recording risk history, ongoing social circumstances, and informing clinical decisions about management options.

While this research provides an in-depth exploration of healthcare providers' experiences of suicide risk assessment, the research was focused on presentations in young people up to the age of 25, which is a distinct group from adult presentations, as indicated in the previous Chapter 5. Although these findings are important, the rates of suicide are far greater for both males and females between the ages of 30 and 59 years old in the UK compared with those under 30 years old (Samaritans, 2016), indicating a further need for clinicians' views on assessment of adult populations. There also may be more difficulty in assessing young people for suicide risk as research suggests that suicidal ideation during adolescence may be part of normative development, making assessment of risk in this population less clear (Stoep, McCauley, Flynn, & Stone, 2009). Moreover, the research only gathered information from practicing GPs, and not healthcare providers in emergency departments, therefore findings may not be applicable to these settings.

Petrik et al. (2015) recently conducted a study to explore emergency department providers' perspectives of the barriers and facilitators of suicide risk assessment. Ninety-two Midwestern USA emergency department healthcare providers, the majority of the sample being nurses, participated in an online open-ended survey that assessed their perspectives on suicide risk assessment. The open-ended questions asked the participants to describe their perspectives on the barriers to assess suicide risk, their preferred

assessment methods, and the factors that facilitate suicide risk assessment. As with prior research (Flowerdew, Brown, Russ, Vincent, & Woloshynowych, 2011), time pressures were found to be a concern of the emergency department providers' in this study. This corresponds with systematic review findings by Duncan and Murray (2012) that found perceived time to be a barrier for allied health professionals completing outcome measures in practice. Despite the perception of time pressures acting as a barrier, in terms of their assessment methods, participants noted that they prefer to utilise a routine, standardised method for screening suicide risk. This may indicate that it is not actually time, but instead the perception of time, that is an issue, and that any risk tools should be as short and feasible as is possible, while still being meaningful. Providers also stated that they prefer to incorporate screening questions during the initial assessment or while gathering history during intake procedures. Some provider's spoke of standard protocols, such as charting templates specific to identifying suicide risk, that increase the likelihood that providers will ask patients about suicide-related concerns.

A further emergent theme identified by Petrik et al. (2015) discussed the importance of communication methods when asking patients about suicide. Administering questions verbally and in a direct and conversational format was identified to be an efficient and effective method, and it was also observed to be one of the only known methods for screening and evaluating suicide risk. If suicide-related concerns were identified, directly asking follow-up questions related to the presence of a suicide plan, intent, access to means and protective factors was seen as essential in the assessment of suicide risk. Healthcare providers also called for an increase in the availability of validated instruments to screen and assess suicide risk. Some also believed that they have a lack of training, and a lack of continuing education, resulting in fear, discomfort, and a preference to consult a mental health specialist to assess risk. The authors of the study noted that this was the

first qualitative research of its kind examining emergency department providers' perspectives on the process of assessing suicide risk, and although this study provides valuable information, the study was conducted online, rather than directly speaking with clinicians about their experiences, which may impact results. Graffigna and Bosio (2006) found differences in findings between online and face-to-face discussion groups about HIV/AIDS, which can be categorised as a sensitive topic, much like suicide. Therefore, further qualitative interview research with clinicians in emergency department settings, particularly in the UK, would be both novel and beneficial.

Despite the fact that qualitative research can inform healthcare research (Meadows-Oliver, 2009; Miller, 2010), and can be employed in the development of risk assessment tools (e.g., Cooke & Johnstone, 2010; Desjardins et al., 2016), there is very little qualitative research directly exploring suicide risk assessment in emergency departments. Furthermore, despite findings suggesting that those who die by suicide often attend the emergency department shortly before their death (Da Cruz, 2011; ISD, 2014), this area has not been well explored. Similar research that has already been conducted has either explored only suicide risk assessment for specific groups (Michail & Tait, 2016), or has used qualitative methods which do not necessarily provide in-depth views from clinicians (Petrik et al. (2015)). Therefore, further research using qualitative methodologies may be beneficial to inform practice in emergency departments in the UK.

6.1.1. Reflexivity & Aims

The findings of Chapter 5 indicated that substantial variation in suicide risk assessment practices across emergency departments in Scotland exists. As noted by Petrik et al. (2015), there is limited prior in-depth research exploring this area, particularly with emergency department clinicians, and the development of risk assessment would benefit

from this methodology. Therefore, the present research aims to further investigate in-depth experiences of emergency department clinician's suicide risk assessment practices. The study will explore, but not be limited to, clinicians' views of their current suicide risk assessment practice; their views of both formal methods of risk assessment and using clinical judgement within their practice; factors they deem most important when assessing risk; and their ideal methods of suicide risk assessment. To the author's knowledge, a study of this kind, directly speaking with emergency department clinicians exploring their suicide risk assessment practices has not been conducted in the UK. Prior to the commencement of this study, based on prior research (Michail & Tait, 2016) and the findings of the previous chapter (Chapter 5), it was anticipated that clinician's would discuss variation in practice, and their reasoning behind this. There was an expectation that clinicians would describe this as a challenging part of their role. However, as this type of research is novel, these results cannot be fully predictable. Given the novel nature of this study, it was expected that this qualitative exploration would provide an in-depth insight into current clinician suicide risk assessment practices in emergency departments.

In terms of my personal aspirations as an active part of the study process, I hoped to gain not only insight from the clinicians about their experiences and practice in suicide risk assessment, but also possibly identify potential barriers or facilitators to their use of suicide risk assessment measures. This information has the potential to effect change in the course of suicide risk assessment in these settings, which could ultimately preserve life. This was dependent upon the conversation with each participant, of course. I also, more personally, hoped to gain confidence in this new research skill. While I had carried out qualitative research in the past, I had not carried it out in this more sensitive area of exploration. Being able to achieve good data and do justice to the research topic and the clinicians taking part while expanding my skills in this area would be an achievement for

me as an early career researcher. In line with me being an active part of the research and bringing elements of myself and my ambitions and aspirations into the research, I must also consider my prior assumptions and the ways in which these might impact on the research. Based on the previous studies, I imagine that time pressures would emerge as a concern and potential barrier to suicide risk assessment measures being used in practice. This is something that seems to be an issue based on the mediocre response rate found in the survey study, and which has been reported in other areas of outcome measurement (e.g., Duncan & Murray, 2012). It will be interesting, however, to identify whether this does emerge, and if it does, whether this is related to the use of a standardised tool for risk assessment or towards the patient assessment itself. The literature review was carried out post-analysis so as not to bias the interpretation of the data as much as possible, though, of course given the focus of my thesis to this point, I was aware of the central theories and arguments within risk assessment and suicide research, particular risk and protective factors of suicide, and this almost certainly will have unconsciously impacted on my interpretation of the data.

6.2. Method

6.2.1. Ethics

Ethical approval was granted from both the Edinburgh Napier University Research and Integrity Committee, in addition to R&D approval from every NHS Scotland Health Board, and complies with both the BPS and the HCPC ethics codes of conduct (BPS, 2014; HCPC, 2016). The ethics process and approval for this study was incorporated into the previous quantitative study and is described in detail in the preceding chapter (Chapter 5).

6.2.2. Design

The current study used a qualitative research design to explore the views about suicide risk assessment with emergency department clinicians. One-to-one, in-depth semi-structured interviews were employed to gather this information. To ensure methodological rigour, verification guidelines, such as checking and confirming, to ensure reliability and validity in qualitative health research by Morse, Barrett, Mayan, Olson and Spiers (2002) were followed, as well as qualitative research interview guidance by DiCicco-Bloom and Crabtree (2006). These guidelines consider ethical issues, developing a rapport with participants, and the interview process itself. Additionally, to ensure the quality of the reported findings, this study followed the COREQ guidelines (Tong et al., 2007). The COREQ guidelines are a 32-item checklist for reporting interviews and focus groups and include items such as, who conducted the interviews, did the participants know about the researcher, how were participants selected, where data were collected, data saturation, derivation of themes etc.

6.2.3. Participants

Qualitative research in emergency care should select participations for their contribution to developing theory (Cooper, Endacott, & Chapman, 2009). To be included in the study, participants had to be NHS Scotland emergency department clinicians who had prior experience of assessing patients for suicide risk as part of their work in the emergency department. Participants were recruited using self-selection sampling as they either volunteered to take part by indicating their interest in participation during the earlier quantitative study ($n = 12$) (Chapter 5), or responded to a recruitment advert that was sent to local contacts from the earlier quantitative study ($n = 3$) (Chapter 5). Of those who responded with an interest in participation ($n = 15$), a final total of six agreed to participate

in the study. All participants were emergency department doctors, two were female and four were male. Four of the participants were Consultants, one was a Speciality Doctor, and the remaining participant was a Speciality Trainee (Table 6.1). At the time of the study participants were working in various Health Boards across Scotland. The sample size was deemed sufficient in line with qualitative guidelines (Baker, Edwards, & Doidge, 2012), as the sample was homogenous (emergency department doctors who have previously assessed for suicide risk), and prior qualitative methodological research has found that in homogenous samples saturation occurs as early as six interviews (Guest, Bunce, & Johnson, 2006). Moreover, the sample size in the current study is similar to prior research exploring clinicians' views of mental health in emergency departments (Artis & Smith, 2013; Wilstrand, Lindgren, Gilje, & Olofsson, 2007). Data were collected between August and November 2016.

Table 6.1

Interview Participant Demographics

Participant	Gender	Current Position
1	Female	Speciality Doctor
2	Male	Consultant
3	Female	Speciality Trainee
4	Male	Consultant
5	Male	Consultant
6	Male	Consultant

6.2.4. Interview Schedule

A semi-structured interview schedule (Appendix 6A) with open questions was developed to gain further information from emergency department clinicians that the survey in Chapter 5 could not feasibly assess. For example, to explore clinicians' in-depth reasoning behind their choice of methods of suicide risk assessment, e.g., using a suicide risk assessment tool or using clinical judgement alone. The questions were developed in line with the prior chapter's (Chapter 5) survey questions, to allow for expansion of any answers from the survey. Prior to beginning the study, the researcher discussed various iterations of the interview schedule with the supervisory team to ensure that the questions included were not too directive, were open to participant interpretation and responses, and that it was not overly leading. However, the interview schedule was not piloted. This can potentially be mitigated by the experience of the supervisory team which included a senior nurse with experience in emergency department care, and a psychologist with experience in suicide risk assessment in a hospital tier 4 setting. The questions included were, however, focused on suicide risk assessment practice, opinions, and processes so as to answer and align to the previous studies within the thesis and the overall thesis aims. The schedule consisted of nine questions which aimed to explore their experiences and views of suicide risk assessment, both formal methods (e.g., using risk scales), and less formal methods (e.g., the use of clinical judgement). The questions also aimed to explore participants' experiences surrounding the amount of training in risk assessment that is currently on offer. Questions further explored which risk and protective factors clinicians considered as important. Finally, participants were asked to describe what an 'ideal' suicide risk assessment would involve.

6.2.5. Materials

Information sheets (Appendix 6B) detailing the study, the author, and the intentions of the research and publication, were made available via email prior to the interview. Participants who participated in face-to-face interviews were required to sign a consent form (Appendix 6C) that documented their understanding of the study and their ability to withdraw their data. A debrief sheet (Appendix 6D) was also provided after completion of the interview which provided contact details of the researcher should any questions or concerns have arisen, and also details of support organisations related to suicide (Samaritans; Breathing Space; ChooseLife) and their contact details for any concerns, or for further information into suicide prevention. During the interviews, the interview schedule (Appendix 6A) was available, and all interviews were audio-recorded using a Dictaphone provided by the University to ensure confidentiality.

6.2.6. Procedure

The data collection took place between August and November 2016. The interviews were conducted by the female author, who was unknown to the participants prior to the study. Interviews were either carried out face-to-face at a location convenient to the participant, or were conducted over the telephone. Telephone interviews were conducted as this made it easier for participants to take part with rotating schedules, and made it more feasible to conduct a Scotland-wide study, as telephone interviews have been found to geographically increase access to subjects (Sturges & Hanrahan, 2004). Each face-to-face interview began with a formal introduction and description of the research, and participants were given an information sheet (Appendix 6B). If the participants agreed to take part in the study, they signed a consent form (Appendix 6C). For the purposes of the telephone interview, participants were sent a description of the study and an information

sheet (Appendix 6B) via email, and agreed to their consent verbally over the phone which was audio-recorded. Each interview followed the interview schedule and took approximately 30 minutes to complete. Once the interview came to fruition, the participant was thanked for their cooperation and either given a debrief sheet (Appendix 6D) at a face-to-face interview, or verbally debriefed if taking part in a telephone interview. Participants were reminded that they could contact the author at any time if they had any questions. As recommended (Creswell, 2008; DiCicco-Bloom & Crabtree, 2006), the data collection and analysis were conducted simultaneously.

6.2.7. Data Analysis

Every interview was audio-recorded and transcribed verbatim. Extended excerpts from transcripts for each participant can be found in Appendices 6E-J respectively. Whole transcripts are not included as these would breach the ethical approvals and R&D procedures for the study. Thematic analysis was chosen for this analysis as it is a flexible approach (Braun & Clarke, 2006) which is suitable for the inductive approach to analysis being utilised in this study. The inductive approach was chosen as, to date, there is limited available research exploring suicide risk assessment in emergency departments, particularly using qualitative methods. Thematic analysis is also a pragmatic approach to data analysis and is suitable in informing guideline creation and tool generation, as it does not aim to uncover the lived experiences of participants, as would Interpretative Phenomenological Analysis (IPA), nor does it view the world under any specific underpinning philosophical standpoint, such as discourse analysis approaches.

While Thematic Analysis is flexible, pragmatic and well suited to the current research, it is not without its limitations. Some critics claim this analytic approach to be a mere information sorting system, and this may have come about due to its relative

simplicity in comparison to other qualitative approaches (Javadi & Zarea, 2016). However, the approach actually aims to do more than mere sorting, instead supporting the researcher to extract meanings and concepts from their data and organising these into themes (Javadi & Zarea, 2016). Themes themselves are difficult to define, with no specific definition emerging from a review of literature (DeSantis & Ugarriza, 2000). However, Morse (1995) proposed the following five definitions of what could constitute a theme within thematic analysis: 1) the overall nature of the person's experience; 2) a structure, based on the nature or basis of the experience; 3) capturing or making uniform the basis of the experiences into a meaningful whole category; 4) adding shape to stable and multiple experiences; and 5) a state, acting as a recurrent theme across the experiences of the participants. These themes can be across or within participant accounts, as themes are derived and considered across the data as a whole and individual participants.

Upon considering which analytic approach to use, it was clear that some would not be appropriate for the aims and scope of the thesis and the study, such as those which are higher-level and seeking meaning based upon philosophical underpinnings (e.g., discourse approaches), or those which sought to understand and interpret the underpinning meanings and lived experiences of participants in some depth. For example, this study is not focused on personal experience, but rather professional views and practice experiences, for which an approach such as IPA would not be suitable. One theory which was considered as potentially viable, though was Grounded Theory. Grounded theory was considered for the analysis as it is an inductive approach which is suitable for use when little is known about a subject area. This approach ultimately aims to develop and construct a new theory through systematic and methodical gathering and analysis of the data. It is essentially 'grounded' in the data and the data and analysis are analysed inductively to construct the new theory. However, as the aim of the current

qualitative study was to understand and uncover current suicide risk assessment practices, the development of new theory was deemed beyond the scope of the analysis. In support of this, Alhojailan (2012) critically reviewed the use of thematic analysis and grounded theory in qualitative analysis. The review found that thematic analysis is a comprehensive process which allows for a flexible approach, using either inductive or deductive methods. Furthermore, the review highlighted that thematic analysis is suitable to use when the study aims to understand current practice of any individual, which fits well with the overarching aim of this study.

To analyse the data using thematic analysis, the Braun and Clarke (2006) guidelines were followed. During the entirety of the study, the data were organised and analysed using NVivo 11 software (QSR International, 2015) for qualitative data analysis. NVivo is a software that supports qualitative research. The software is designed to organise transcripts and allows the users to classify, sort and arrange information and examine relationships in the data. Although electronic data analyses are more often associated with quantitative methods, computer assisted qualitative software such as NVivo, has a main function which is not to analyse the data, but rather to aid data storage and management, and facilitate the analysis process, which the researcher must always remain in control of (Zamawe, 2015). A description of how Braun and Clarke's (2006) guidelines were followed using NVivo will now be discussed.

According to the Braun and Clarke (2006) thematic analysis approach, there are six phases. Phase one involves familiarising oneself with the data by reading and re-reading the interview transcripts whilst making notes on the data, the original audio files were listened to and re-listened to in order to contextualise the data. Transcripts were uploaded into NVivo and were read and re-read to allow for both intellectual and emotional

immersion in the data. This was to search for meaning and patterns in line with the Braun and Clarke (2006) guidelines. In terms of intellectual engagement with the data, the data analysis concurred with conducting the series of interviews, which allowed for further insight into the data to be developed. Furthermore, the analysis took place while working on other areas of the thesis, for example the conceptualising of the risk and protective factor reviews, and also during the suicide risk assessment survey analysis, which meant that findings were reflexively being triangulated. Also, any available literature surrounding the experiences of suicide risk assessment experiences were re-read to conceptualise information. At this stage, any relevant or meaningful quotes were preliminarily coded by the researcher in NVivo. Phase two involves generating initial codes which identify and label a feature of the data that is relevant to the research questions. NVivo allows the user to generate codes and label the text within transcripts with these initial, thus initial codes were created by the researcher and applied to the text by the researcher within the NVivo software package. The third phase of thematic analysis searches for themes within the data. A theme, operationally defined and applied within the current thesis, captures importance within the data in relation to the research questions and represents a pattern of response within the data set. While using NVivo, the initial codes that were generated were reflected upon and the data were then organised within NVivo under initial themes by the researcher.

Phase four reviews the potential themes identified in the previous stage. During this stage of the analysis initial themes were discussed with two members of the supervisory team (JM & ZC). Initially, five themes were derived from the data. Experiences of Suicide Risk Assessment was a theme with Frequency, Challenging, and Time Consuming acting as sub-themes. What Clinicians Assess For was also a theme which included Behaviour, Risk and Protective Factors as sub-themes. Clinical Decision Making which included

Clinical Experience and Judgement as sub-themes was also a theme. Initially, Training was a theme of its own discussing Current Training and Recommendations as sub-themes. Finally, Recommendations for a Suicide Risk Assessment Tool was a final theme with Brevity of Tools, and Validation of Tools as sub-themes.

Upon discussion with team, the themes were reworked while going back to the data, and throughout the analysis, disagreements or questions were discussed and interpretations were validated. Once the themes were reflected upon, and reflecting the overall aim of the thesis to develop recommendations for clinical guidelines for suicide risk assessment, it was decided that having relatively descriptive overarching themes that could be applied to clinical practice was the most appropriate approach. After consulting with the team, phase five of the thematic analysis defined and named the themes so that they had a clear focus, scope and purpose, which built on the previous themes above that together provided a coherent and meaningful story of the data. As this is an iterative interpretive process, after considering these as a whole, and following additional feedback, these themes have been reconsidered and higher order themes with meaningful categorisation were applied. These are detailed in table 6.2. The sixth and final stage of thematic analysis is to produce the report, being mindful of the order in which themes are presented.

6.3. Findings

Five of the six participants said they were at the time of the interview primarily using their clinical judgment to assess for risk of suicide in patients. Four of these participants were Consultants in emergency medicine, and one participant was a Speciality Doctor. The remaining participant, a Speciality Trainee said that they were using the SAD PERSONS scale to aid in clinical decision-making. These findings align to those

identified in the previous chapter, as within the current sample, there is variation in practice. The thematic analysis identified three higher order themes: Personal ‘how’s and whys’: Practitioner experiences and beliefs about suicide risk assessment; ‘Should do’ vs ‘what I do’; and Future Aspirations and Supporting Practitioners. Within these higher order themes were four major themes, Current Experiences of Suicide Risk Assessment; Components of Suicide Risk Assessment; Clinical Decision-Making; and Suicide Risk Assessment Needs. Each of the major themes contained sub-themes which are outlined in their respective reported theme, and in Table 6.2. The themes and subthemes will be described below, inclusive of illustrative quotes made by participants in the study corresponding to the theme.

Table 6.2

Thematic Analysis Identified Themes

Higher Order Theme	Theme	Sub-themes	Quote
Personal ‘hows and whys’: Practitioner experiences and beliefs about suicide risk assessment	Current Experiences of Suicide Risk Assessment	Suicide Risk Assessment is Common, but Uncomfortable	“Every shift I would have to assess at least 1 person who has presented through mental health, predominately through self-harm or possibility of suicide through a variety of presentation options.” (Participant 5, p1, 8-10).
		Not Always a Good Use of Time	“It feels like I am performing a task just for the sake of performing a task, and I don’t feel that most of the questions that they actually use are all that meaningful.” (Participant 1, p 2, 22-23).
		Training Deficits as a Barrier to Good Practice	“...for emergency medicine there is limited mental health input or training for the spectrum of mental illness, and as for assessment of suicide risk there is probably little to no training.” (Participant 5, p1, 13-15).
		Children & Adolescents	“I think children, it’s erm it’s kind of a different population and a different set of things.” (Participant 2, p5, 3).

	Clinical Decision-Making	Clinical Experience	“...probably the best thing we have got, but it is very dependent on the individual and their level of experience.” (Participant 2, p1, 26-27).
		Clinical Judgement	“I think seniors don’t always take the scores as to mean anything. They go more down to you know the clinician’s opinion on how the person is.” (Participant 3, p3, 5-6).
‘Should Do’ vs ‘What I Do’	Components	Paying Attention to Patient Demeanour	“...you look at their behaviour, speech pattern, thought processes, attire, mood, all of that kind of stuff.” (Participant 4, p5, 3-4).
		Determining and Identifying Risk Factors	“Assessment is looking for a presence of real red flags, so that would be a history of an affective disorder such as depression, or say bipolar affective disorder, or a history of psychosis as well, erm that for me is a real red trigger.” (Participant 5, p3, 3-5).
		Considering Protective Factors	“I look at what support is in place and what services are already in place for them more than anything.” (Participant 1, p6, 26-27).
Future and Practitioners	Aspirations and Supporting Needs	Suicide Risk Assessment	Training Recommendations
		Suicide Risk Assessment Tool Recommendations	“I think for people who are coming to A&E a refresher in psychiatric assessment is probably not a bad idea.” (Participant 6, p5, 29-30).
			“The more simplified the better and the more user friendly.” (Participant 6, p8, 5-6).

Personal ‘hows and whys’: Practitioner experiences and Beliefs about Suicide Risk

Assessment

The first of the three higher order themes of the current study is comprised of two major themes. Current Experiences of Suicide Risk Assessment was defined as one theme, which was made up of five sub-themes from the discussions with participants, the sub-themes are as follows: Suicide Risk Assessment is Common, but Remains an Uncertain and Uncomfortable Task; Using Suicide Risk Assessment Tools Isn’t Always a Good Use of Time; Training Deficits are a Barrier to Good Practice; and Children &

Adolescents. The second major theme was Clinical Decision-Making, which was comprised of two sub-themes, Clinical Experience, and Clinical Judgement.

Current Experiences of Suicide Risk Assessment.

This theme identified the current experiences that clinicians have of suicide risk assessment in their practice. The theme further identified four sub-themes from the discussions with participants, the sub-themes are as follows: Suicide Risk Assessment is Common, but Remains an Uncertain and Uncomfortable Task; Using Suicide Risk Assessment Tools Isn't Always a Good Use of Time; Training Deficits are a Barrier to Good Practice; and Children & Adolescents. These will now be described below.

Suicide Risk Assessment is Common, but Uncomfortable.

Four of the participants in the study discussed how suicidal patients are seen frequently in the emergency department with all participants describing it as at least a daily occurrence, with participants also having to make assessments of suicide risk frequently.

“I would say most days that you are on clinical duty you have to make some form of assessment of somebody who is at risk of suicide.” (Participant 4, p1, 18-20).

Three of the participants discussed the ways in which they find suicide risk assessment a challenging part of their role. Participants seemed to feel that this task was more challenging when they were new to emergency medicine, due to their lack of experience. Furthermore, clinicians were worried that individuals who are discharged may complete suicide, and felt immense pressure and responsibility in this instance.

“...some cases are clear cut, but others, the majority seem to land in this grey area, erm middle, and I wasn't comfortable with erm, it wasn't something I was confident with

and there seems to be lots of different kind of advice from different people.” (Participant 3, p1, 23-26)

Participants also expressed explicit worries that they could be held accountable for patients’ suicidal deaths, and said they felt vulnerable that their practice would be under scrutiny if that was to happen. Out of hours care was also an issue brought up by three participants who said they felt such these services may be limited, especially so in psychiatric services for children and adolescents.

“Yeah, I mean, I hope you get better at it, certainly at the start it’s one thing I remember feeling, when I first started doing this type of work, feeling it was really quite difficult.” (Participant 2, p4, 23-24).

Not Always a Good Use of Time.

Clinicians’ current experiences of suicide risk assessment is that it is a time consuming process. Half of the participants discussed that they felt that completing suicide risk assessments can be time consuming in nature, which is not ideal within a time-limited emergency department.

“Yeah, so this is the difficulty is that erm, you know to do all that even if you are quite fluid at it, you know that will easily take me 15, 20 minutes by the time you get someone warmed up and get them talking or whatever and if the psychiatrics come with their booklet they will take an hour.” (Participant 2, p4, 11-13).

Training Deficits as a Barrier to Good Practice.

Training was discussed at length by participants, and every participant discussed training with regards to suicide risk assessment during the interviews. From speaking with

clinicians it appears that there is limited mental health training, and little or no training in actual suicide risk assessment, other than what is completed during medical school.

“Everyone has their CPD that they have to do but erm suicide risk assessment or assessment of deliberate self-harm or mental illness or things, is not one of the compulsory training modules.” (Participant 4, p3, 15-17).

“Although I’ve done my foundation training I certainly feel like probably this is my least comfortable area of medicine for me”. (Participant 3, p8, 9-10).

However, two of the participants discussed training sessions that were held either during inductions or at specific training sessions, namely safeTALK. safeTALK is a formal half-day training session which teaches how to recognise persons with thoughts of suicide and to connect them to suicide intervention resources (ChooseLife, 2017). One participant discussed that twice per year, a psychiatrist would conduct teaching for the emergency department clinicians, and the participant seemed positive about this teaching. In terms of using suicide risk assessment tools, four of the participants described using a suicide risk assessment tool as an ‘aide-memoire’, with some discussing how they would not use the scoring system as intended.

“I guess it serves as a prompt, and we use lots of these in medicine, you know it helps you obtain a full, more complete history, it helps remind you what things to ask, erm and it helps to remind you to do a more complete risk evaluation.” (Participant 6, p4, 13-16).

“I’ll kind of be guided by some of the scoring, but to be honest, I wouldn’t probably tally up the scores, it would just be, you know, I would be looking at the risk factors, what they have done, and what they are telling me, erm and then from there, I would get an

impression of where I think they would stand in the scoring system.” (Participant 3, p4, 19-22).

Participants seem to be aware of the current research literature suggesting that certain published suicide risk assessment tools are lacking in validity, and they feel that no robust suicide risk assessment tool has yet been developed.

“I mean when I started training in emergency medicine there was a tool called SAD PERSONS that was very popular but it’s been fairly well ‘doshed’ now. Discredited is probably a better word, as a standalone tool anyway.” (Participant 2, p1, 29-30).

Three of the participants discussed how having a suicide risk assessment tool can act as evidence of their clinical decision-making; in particular, if a patient absconds or goes on to complete suicide. It was further discussed that decision-making should be backed up with a form of written assessment. One participant relayed that at present they feel they have no other option than to fill in a suicide risk assessment pro-forma as they feel they are not legally protected if they do not.

“So, if people were able to say well that unfortunate thing happened but you know the best thing we know to do in a situation is this, here’s the evidence that I did this thing, then I think that would make people comfortable to do their job.” (Participant 2, p6, 19-21).

Children & Adolescents.

The final sub-theme of Current Experiences of Suicide Risk Assessment was developed regarding children and adolescents. Five of the six participants specifically discussed suicide risk assessment with children and adolescents. The emergency department clinicians alluded that children and adolescents are an entirely different

population group, and would be assessed as such. Clinicians discussed that children and adolescents would always be referred on for further assessment.

“I suspect that the percentage of them that would be referred would be very, very close to 100%, if not 100%.” (Participant 4, p6, 3-4).

One participant discussed how the paediatric population is so markedly different, that any further development of suicide risk assessment should concentrate on the larger adult population.

Clinical Decision-Making.

The theme of clinical decision-making comprises of two sub-themes, clinical experience and clinical judgment.

Clinical Experience.

Participants communicated that having clinical experience is beneficial in deciding whether to refer a patient to psychiatry. One participant even discussed that the reason there may be no national protocol for suicide risk assessment in the emergency department is that most clinicians prefer to use their own clinical experience to make decisions.

“So you know like if your, some of the consultants who have been there for years and years and years, and they’ll have seen so many through the door, then potentially they could get to the stage where they, given long enough, they can work out whether someone is safe to be discharged without seeing psychiatry.” (Participant 3, p3, 20-24).

However, discussed by all participants in some detail, was junior emergency medicine staff and their experiences of suicide risk assessment. More generally,

participants felt that due to the lack of acquired experience that junior doctors have, they find this work difficult.

“Yeah, I mean, I hope you get better at it, certainly at the start it’s one thing I remember feeling, when I first started doing this type of work, feeling it was really quite difficult.”

(Participant 2, p4, 23-24).

One participant discussed not only his concerns with the lack of clinical experience that junior doctors have when conducting an assessment, but also a lack of understanding in the multiple factors involved in suicidality and community based services available. Participants discussed how junior staff are not expected to make a decision regarding further referral for suicide risk unsupported, and recalled that as junior doctors, they would often seek advice from senior members of staff before making a clinical decision. Furthermore, as junior doctors, participants felt that they would ‘err on the side of caution’ and refer patients in order to have them seen by psychiatry. Participants also discussed how the use of suicide risk assessment tools and departmental pro-formas can be beneficial in developing clinical experience. One participant actively encourages junior staff to use a departmental pro-forma when conducting suicide risk assessments.

“They are useful for learning risk assessment, and they are useful for those others who haven’t gotten other experience to fall back on.” (Participant 4, p2, 7-8).

Clinical Judgement.

Participants seemed to feel that in the absence of a robust suicide risk assessment tool, that clinical judgement is the best means of making a decision regarding patient outcome.

“So my personal concern is that whilst guidelines, protocols, etc. are helpful they should not replace clinical decision-making. There is a great need for recognition of a clinicians’ experience, training, and also knowledge of the patient is paramount in making a valid assessment.” (Participant 5, p1, 22-25).

‘Should Do’ vs ‘What I Do’

This higher order theme is comprised of one major theme, Components of Suicide Risk Assessment which included three sub-themes, Paying Attention to Patient Demeanour; Determining and Identifying Risk Factors; You Must also Consider Protective Factors. These findings are described in further detail below.

Components.

This theme comprises of three sub-themes relating to the components of suicide risk assessment that clinician participants discussed that they assess for. These include, patient demeanour, risk factors for suicide, and protective factors that mitigate suicide risk.

Paying Attention to Patient Demeanour.

All participants discussed patient demeanour, such as interaction and behavioural cues they consider when assessing patients for impending suicide risk.

“I am much more interested in how the patient interacts with me and how they have come to be there then necessarily anything else.” (Participant 1, p5, 27-28).

The most frequently mentioned behavioural characteristics that are looked for during assessment is lack of patient engagement with patients being withdrawn. Further

mentioned behavioural characteristics were distraction, confusion and eye contact. Participants also discussed patient attire and whether the patient appears 'dishevelled'.

"One of the most important things is probably just initial rapport and feeling that they actually are engaged in the interview, you know if someone was just very withdrawn and not answering the questions or whatever then that would be very worrisome." (Participant 6, p3, 18-20).

Determining and Identifying Risk Factors.

Throughout the interviews participants discussed the most important risk factors that they assess for suicide risk. Most commonly reported were suicide methods; mental illness; substance and alcohol misuse; and home environment. In terms of methods, patients who have made a serious attempt, or have access to lethal means were considered by participants to be high risk.

"...if they were trying to hang themselves, again that's a big sign that this is a serious attempt." (Participant 3, p5, 4-5).

Participants further emphasised that the lack of social support, or having a chaotic home environment was perceived to be a potential risk for suicide.

"...if they don't have someone to go home to, then I would be very wary to just discharge them off my own back." (Participant 3, p4, 26-27).

Other risk factors that were discussed by participants included not showing any regret after a suicide attempt; being unemployed; being male; and being socially isolated.

Considering Protective Factors.

When discussing protective factors that participants assess for which mitigate suicide risk, future planning and having home or family support were mentioned equally. Future planning consisted of participants discussing whether patients had positive future plans.

“So yeah, get them talking about erm, what’s happening in their life, have they got appointments coming up, you know, often people might have some family thing, or maybe there is something they have been waiting on like maybe seeing an alcohol service or something and would that be helpful, are they planning to go to that, or a job thing – anything really just to get a sense of whether they are still talking like they are planning for their life to continue.” (Participant 2, p3, 25-20).

Support at home and family was discussed at length, with participants feeling more comfortable to discharge a patient if they had sufficient support at home, and were not living alone.

Future Aspirations and Supporting Practitioners

This final higher order theme comprises of one major theme, Suicide Risk Assessment Needs which has two sub-themes, Training Recommendations, and Suicide Risk Assessment Tool Recommendations.

Suicide Risk Assessment Needs.

This theme focuses on aspects that clinicians recommend should be considered during suicide risk assessment. The theme is included two sub-themes of training recommendations and suicide risk assessment tool recommendations.

Training Recommendations.

Without prompt, four of the clinicians made recommendations for suicide risk assessment training. Clinicians felt that there is a great need for tailored and focused training, particularly for those who are new to emergency departments.

“Yeah, I think definitely, it’s something that I came across so frequently within A&E, erm, and some cases are clear cut, but others – the majority seem to land in this grey area, erm middle, and I wasn’t comfortable...it wasn’t something I was confident with and there seems to be lots of different kind of advice from different people”. (Participant 3, p1, 23-26).

One participant discussed the need for training when using suicide risk assessment tools, in particular to provide training points that cover the relevance and importance of why certain questions should be asked during a suicide risk assessment, and to understand why certain questions in an assessment carry more weight. However, when discussing the future of suicide risk assessment, a consultant with over 16 years’ of experience suggested that a suicide risk assessment tool may not be the answer to overall risk assessment, and that providing further training in acute mental health may improve suicide risk assessment.

“Junior doctors or less experienced doctors have difficulty with this, I suspect that the answer is not in a tool, but perhaps more training, a module or course or specific training package that was delivered, would probably help address that. For instance, there is a lot of courses on life support, and trauma management, and sick children, and all of this, but there is very little in a way for acute mental health in the emergency department for trainees.” (Participant 4, p7, 29-33).

Suicide Risk Assessment Tool Recommendations.

When discussing the details of a risk assessment three participants felt that any suicide risk assessment in emergency settings needs to be brief, particularly, as previously mentioned, participants find suicide risk assessment to be time consuming. Furthermore participants discussed how they are time restricted, and that if it was safe to do so, speeding up the process would be the ideal. Participants discussed how it should be focused, as it is not meant to act as a detailed psychiatric assessment, as at this stage it is a basic triage and referral assessment to decipher whether a patient needs further in-depth assessment.

“...simplicity is a wonderful thing, but it doesn’t need to be so simple that you can remember it. Erm, something that could be fitted on one side of A4 you can print off.”
(Participant 2, p6, 10-12).

Participants discussed the need for outcome guidance to be involved in suicide risk assessment tools. For example, that a particular score or risk identification correlated with an outcome or a treatment plan.

“...having a form where actually ticking a box meant that the score correlated with an outcome, or a treatment plan might be a good start.” (Participant 1, p7, 28-29).

Participants expressed the need that any future developed suicide risk assessment tool would need to be robust and validated for use in emergency departments. There were concerns that any risk assessment tool potentially developed in the future would have difficulty in being validated and would likely over triage and over refer.

“...if there was a scoring system that was taken up by NHS, like the board that I’m in, or as NHS Scotland as a whole, then I think that would be much more helpful you know if it

was proven to be like quite a rigorous scoring system which actually worked.”
(Participant 3, p3, 7-10).

6.4. Discussion

The aim of the current research was to investigate in-depth experiences of emergency department clinician’s suicide risk assessment practices. This builds upon the findings of the previous chapter, by exploring in-depth the quantitative findings. The study identified four major themes from the data, which included clinician’s current experiences of suicide risk assessment, components of suicide risk assessment, clinical decision-making, and suicide risk assessment needs; which coincides with previous findings of similar research (Michail & Tait, 2016; Petrik et al., 2015). The first major theme, which detailed current experiences of suicide risk assessment in emergency departments, found that suicide risk was assessed frequently, at least daily, in the emergency department. This aligns with prior findings that emergency departments are often the de facto option for acute contact suicidal patients within healthcare (Larkin & Beautrais, 2010). Suicide risk assessment was discussed by participants as a challenging and time consuming part of their role, which also corresponds with previous research that evidenced this (Petrik et al., 2015). This is also an issue faced by Psychiatrists (Waern, et al., 2016), as findings show they have concerns that structured risk assessments are time intensive, when time is often limited such as within a busy emergency department.

Also discussed within this theme was the current use of suicide risk assessment tools, to which participants described using a suicide risk assessment tool as an ‘aide-memoire’. Kleespies, Hillbrand, Berman, Drummond, and Firestone (2012) suggest that a listing of risk and protective factors for suicide can be regarded as an aide-memoire, so that a listing of factors can be reviewed during clinical judgement for suicide risk.

Previous research has suggested that the SAD PERSONS scale can be a useful aide-memoire for assessing suicide risk (Tate & Feeney, 2016), and this supports prior qualitative evidence that clinicians find it efficient and effective to administer questions verbally and in a conversational format (Petrik et al., 2015). These findings indicate a limitation of the previous chapter (Chapter 5), that when participants were asked whether they use a suicide risk assessment tool, that further questions were not asked as to whether they use it formally as an actuarial tool, or as an aide-memoire. Findings of the current study would suggest that clinicians are likely using risk tools as aide-memoires, as this corresponds with what was discussed by participants. This reflects the need and necessity of qualitative research with clinicians to discuss practices in-depth, and gather information that would not necessarily have been extrapolated from a survey. The findings of the current study would suggest that some clinicians are perhaps using a form of Structured Professional Judgement (Bouch & Marshall, 2005) to assess patient suicide risk by using actuarial tools as an aide-memoire, augmented with clinical judgement (also labelled in some literature as an ‘adjusted actuarial approach’; Murray & Thomson, 2010). This perhaps indicates that formal training in Structured Professional Judgement techniques of assessment may be beneficial, given the current utilisation of this approach within emergency departments.

Participants in the current study were also aware of the current research literature suggesting that many published suicide risk assessment tools are lacking in validity (Bolton et al., 2012; SBU, 2015). However, this contradicts findings of the widespread use of suicide risk assessment tools, in particular the SAD PERSONS scale, in emergency departments (Quinlivan et al., 2014), which was also previously identified in the preceding chapter (Chapter 5). Although these studies found that suicide risk assessment tools were in frequent use in emergency departments, the studies did not identify whether

clinicians used the tools as they were intended, or used them solely as aide-memoires which a number of participants in the current study alluded to, particularly among more experienced members of staff.

Another major theme identified in the current study centred on the components of suicide risk assessment. Participants discussed throughout the interviews what particular factors they assess when presented with a patient who may be at risk of suicide. Risk factors for suicide that were frequently mentioned such as mental illness, substance misuse, and access to lethal means, coincided with prior extensive research into risk factors (McClatchey et al., 2017; McLean et al., 2008), in addition to the findings of Chapter 3 within this thesis. In line with prior research (Petrik et al., 2015), participants discussed the assessment of protective factors that mitigate suicide risk, and this corresponded with what is already known from the literature (McLean et al., 2008), and what was found previously in this thesis (Chapter 4) when investigating protective factors of suicide that can be assessed in emergency healthcare settings. Protective factors mentioned by participants in this current study included having adequate family support and positive future planning. This indicates that clinicians have an up to date knowledge on the suicide protective factors literature.

The participants in this study discussed protective factors equally with risk factors of suicide, however, the research literature exploring protective factors does not reflect this. Suicide research literature is often focused on risk factors and fails to comprehensively explore protective factors. This was evidenced in the systematic reviews within this thesis, as the review exploring risk factors (Chapter 3) identified a total of 35 high-quality papers for final inclusion, whereas the systematic review exploring protective factors (Chapter 4) only identified a total of eight. Moreover, the paucity of

protective factors also extends to suicide risk assessment tools, as widely used tools, such as the SAD PERSONS scale and the MSHR fail to address protective factors, and this directly contradicts the findings of the current study, where protective factors are seemingly equally evaluated with risk factors by emergency department clinicians during assessment.

However, most frequently communicated by participants as components of suicide risk assessment was patient demeanour. This included for example, whether a patient is engaged with the clinical interview or withdrawn; whether or not the patient is making eye contact; whether the patient is distracted. Research has found that non-verbal cues are considered to be important when psychiatrists are assessing for the risk of suicide (Waern et al., 2016). Results from the earlier chapter (Chapter 5) have identified that around 40% of clinicians are using the SAD PERSONS scale to assess for the risk of suicide. However, the SAD PERSONS and the Modified SAD PERSONS scale do not assess any of these characteristics, which according to the findings of the current study, that clinicians use predominantly and find valuable in clinical decision-making.

Patient behaviours and non-verbal cues are briefly mentioned in the BMJ Best Practice suicide risk management guidelines (BMJ Best Practice, 2016). The guideline suggests that if the patient does not directly answer questions, that ‘acquiring collateral information’ e.g., an inability to develop a rapport or make eye contact, should be considered in the assessment of suicide risk. Recent guidance, providing an overview of suicide prevention for physicians, suggests to be aware of patient body language (Cole-King & Platt, 2017). However, it does not discuss what type of body language being referred to. In the current study, engagement and eye-contact were mentioned frequently, so perhaps further quantitative research should be conducted to explore which body

language and patient demeanour features are considered to be important in assessing acute patients. In particular, as both the earlier risk and protective factors reviews (Chapter 3 & 4) within this thesis did not identify patient demeanour as either a risk or protective factor, thus indicating a research need to clarify its utility in assessments.

Another theme identified from the data involved clinical decision-making. Participants in the study expressed that having clinical experience is beneficial in assessing patients' risk of suicide, which coincides with findings that clinical decisions are based from experience (Gambrill, 2005), and that clinical experience increases confidence in decision-making (Hay et al., 2008). Thompson (2003) found that most nurses draw on experience and experimental knowledge as evidence for clinical decisions and suggested that although experimental knowledge is a necessary, it is not sufficient basis for clinical decision-making. This suggests that for suicide risk assessment, having clinical experience is beneficial in making critical clinical decisions. Recent in-depth interviews investigating experiences of suicide risk assessment with psychiatrists uncovered that they often rely on 'gut feeling' when assessing a patient, and voiced concerns that this may be unprofessional (Waern et al., 2016), particularly as it is known in the literature that clinicians may be impacted by heuristic biases within their judgment (Hadlaczky, 2016).

This highlights an interesting point that even psychiatrists who specialise in mental health find this work challenging, and emergency department clinicians are also having to make these type of judgement calls often daily, without specialist training experience. Simon (2006) notes that clinical experience and judgment are an essential part of suicide risk assessment but should be informed by evidence-based research. From the current study's findings, it seems that clinicians are informing their decisions by evidence-based

research, in particular as a number of them mentioned that they have concerns with the lack of validity of suicide risk assessment tools and prefer to use them as an aide-memoire, rather than relying on these heavily. Furthermore, clinicians discussed throughout the interviews relevant risk and protective factors for suicide that have been previously identified by the research literature. While clinical judgment when used alone holds a risk of unconscious bias impacting the assessment, the clinicians' knowledge of not only risk and protective factors, but also the validity issues relating to assessment tools is a good indication of evidenced-based informed decision. However, the current sample is small, and participation was self-selected, and therefore may not be representative of the wider population.

During the study, participants seemed to feel that in the absence of a robust suicide risk assessment tool, that clinical judgement is the best means of making a decision regarding patient outcome. Simon (2008) discusses that clinical judgment is a subjective way to make decisions when objective tools are lacking. However, as some of the clinicians in this study previously mentioned, they use suicide risk assessment tools or the departmental pro-formas as aide-memoires. This would suggest that they are not strictly using a clinical judgement approach alone, but are in fact, using a type of Structured Professional Judgement (Bouch & Marshall, 2005). Simon (2006) notes that ultimately, suicide risk assessment is an informed judgment call that incorporates information from a number of sources and that clinical experience and judgment are an essential part of suicide risk assessment.

The final major theme resultant from the data was suicide risk assessment needs. This included both training recommendations and suicide risk assessment tool recommendations as sub-themes. All of the participants discussed training, or the lack

thereof, in some capacity during the interviews, and thoughts of current training was integrated into the earlier current experience of suicide risk assessment theme. However, without prompt, the majority of participants made recommendations for training. Clinicians felt that there is a need for tailored and focused training, particularly for those who are new to emergency departments. This coincides with prior research that finds post-qualification training in mental health is limited for emergency department clinicians (Giordano & Stichler, 2009). Recent research surveying skills and confidence of junior doctors in emergency medicine found that 28 of 32 junior doctors received no psychiatry training after qualifying from medical school. Nine junior doctors in the sample also stated they were not confident about seeing psychiatric patients in the emergency department (Gordon, 2012), which demonstrates a specific need for mental health training for junior medical staff working in emergency departments. Furthermore, emergency department clinicians who believe they have a lack of training and a lack of continuing education are fearful and prefer to consult a mental health specialist to assess risk (Petrik et al., 2015). The research demonstrates a specific need for mental health training for junior medical staff working in emergency departments.

Prior research has been conducted evaluating a three-day mental health training programme for emergency department staff and uncovered positive results (Stuhlmiller et al., 2004). The course involved an approach that included role plays, demonstrations and case discussions, clinical assessment, and immediate management. Of the participants interviewed in the study, most said they were using the triage scale that was taught during training, and around half commented how triage assessments were being conducted more effectively. The majority of respondents communicated that they were comfortable to discuss with clients about suicide intention, and a member of staff commented on the good hints on how to talk about suicide that were included in the

course. This suggests that training, specific to mental health, can have a positive impact on emergency department clinician's practice. Moreover, a systematic review conducted by Mann et al. (2005), exploring suicide prevention strategies, found that physician education in depression recognition was found to prevent suicide. This again highlights the positive impact that training can have on practice.

However, any training session that has the potential to be rolled-out to improve care must be fully evidenced-based. For example, the results of the current study found that one participant in the sample mentioned that safeTALK training sessions are at times held for staff, and spoke positively of the experience. safeTALK training teaches individuals how to recognise persons with thoughts of suicide and to connect them to suicide intervention resources (ChooseLife, 2017). However, in a recent systematic review of global literature, limited research was found investigating the evidence of the effectiveness of safeTALK, and of the six studies included, only one was peer-reviewed (Kutcher, Wei, & Behzadi, 2016). Not one study reported on the impact of suicide attempts, emergency room visits for suicide attempts, or suicide rates. The review goes on to discuss that the entire global data set in the peer-reviewed literature on the effectiveness of safeTALK is based on one study of 17 veterinary students in Scotland. This highlights a need for critical evaluation of training packages designed for suicide risk assessment, in particular as safeTALK is awareness raising, not assessment focused.

When discussing recommendations for suicide risk assessment tools, participants expressed the need for any such tool to be brief. This likely goes back to their concerns that suicide risk assessment can be a time consuming part of their role, and research consistently shows that emergency departments are time limited (Baker, 2016). Wintersteen and Diamond (2007) note the need for screening instruments in emergency

department settings to be accurate and brief. Participants in the current study did communicate that safety of patients should not be compromised for brevity, and would only be willing to use a brief suicide risk assessment tool if it ensured patient safety. Participants also voiced the need for assessments to include outcome guidance. Recently developed suicide risk assessment tools have included outcome guidance within their assessment, for example the Suicide Assessment Five-step Evaluation and Triage (SAFE-T) (Jacobs, 2011) considers this, and suggests that patients with no specific plans or intent to complete suicide, and who have no history of suicidal behaviour, should be recommended outpatient follow-up. Although recent findings have recommended the SAFE-T as a pragmatic multidimensional assessment (McDowell, Lineberry, & Bostwick, 2011; Fowler, 2012), research evaluating its efficacy is sparse. This coincides with further findings of this theme, in which participants recommend that any developed suicide risk assessment tools should be robust and fully validated to use, this likely stems from the findings discussed earlier, that clinicians are aware of the research that indicates the lack of clinical usefulness suicide risk assessment tools have. Boudreaux and Horowitz (2014) recently discussed that any newly designed suicide risk assessment instruments need to be rigorously validated. In light of the current lack of such instruments, perhaps there should be at present, a greater focus on the need for training.

6.4.1. Strengths & Limitations

A major strength of this study is that to the author's knowledge, this the first of its kind in Scotland and the rest of the UK, explicitly exploring clinicians' in-depth experiences of suicide risk assessment practices in emergency departments. Although prior similar studies have been conducted, these assessed only certain populations e.g., young people, did not involve emergency department staff, or did not take place in the

UK (Michail & Tait, 2016; Petrik et al., 2015). This in-depth exploration goes beyond mere literature based research, complementing the findings in the earlier systematic review chapters (Chapters 3 & 4), and the survey of suicide risk assessment practices (Chapter 5). Furthermore, the study identified aspects of assessment e.g., patient demeanour, which is rarely discussed in the literature. A further strength of this study is that it follows the COREQ guidelines (Tong et al., 2007). A systematic review of qualitative research in emergency departments found wide variation and inconsistencies in methods and terminology (Paltved & Musaeus, 2012). Therefore by adhering to COREQ guidelines, this will have increased the quality of the reporting.

A potential limitation of this study was the small sample size. This arose from difficulties with recruitment in this population. However, there was an adequate geographical distribution of the sample as recruitment took place across all eligible emergency departments, which may strengthen results. Emergency department doctors can also be considered to be a homogenous group, and previous research exploring the methodology of thematic analysis using a homogenous sample has found that saturation within qualitative data are present as early as six interviews (Guest et al., 2006). This was evidenced during the current study by the lack of new themes extracted from the data by the final interview.

There is some debate surrounding the use of data saturation in PhD theses (Mason, 2010), as well as during research itself (Fusch & Ness, 2015). Burmesiter and Aitken (2012) discusses that data saturation is more about the depth of the data, rather than the number, and further address that a large sample size may not guarantee data saturation. However, the lack of new themes emerging from the data is an indication of saturation (Guest et al., 2016). Irrespective of the debate around saturation in the literature, the

discussion of saturation within this chapter and its methods was included in order to adhere to the COREQ guidelines (item 22) and ensure quality and transparency of the research.

A further limitation was potential participant bias. Clinician participants were able to self-select their participation in the study; this may have led to a self-selection bias. Selection bias may mean that participants with significant experience in suicide risk assessment, or those with little experience may have volunteered which might skew the views expressed. Equally people who feel more confident or those who face more challenges might self-select. In particular, one participant during the study emphasised their personal interest in mental health in emergency settings, and another participant found this aspect of their role the most challenging and was therefore interested in taking part. This may have had some effect on the results of this study as participants were actively interested in the area and practice, so may have their own agenda or have a higher level of reading, training, or involvement in the area than those who did not volunteer. They may have also been more confident in their opinions and experiences than others who did not volunteer. Furthermore, the Hawthorne effect (McCambridge, Witton, & Elbourne, 2014) was considered to induce potential impact on the results, as clinicians were aware of being studied and may have changed their behaviour accordingly. However, recent research has found no evidence that the Hawthorne effect impacts primary care clinicians under observation during practice (Fernald, Coombs, DeAlleaume, West, & Parnes, 2012). Therefore, the results of the current study perhaps were not impacted by this, especially the study utilised interviews and did not intrude into day-to-day practice in that way. However, accessing non-self-selecting populations would be of interest in future research to increase the diversity of experiences and opinions being expressed.

Telephone interviews were conducted during this study, alongside face-to-face interviews. This was to increase access for participants as it provided them with the freedom and flexibility to take part when it suited them, and removed some barriers related to time and clinical workload. There were concerns that this would lead to the loss of non-verbal and contextual data. However, as healthcare clinicians, the participants in both face-to-face and telephone interviews were very 'matter of fact'. Post analysis, the data for each 'group' of participants were inspected and no observable differences appeared to be present in their representation across the themes and sub-themes. This coincides with previous healthcare research which found that the use of telephone interview methodology yields similar results as face-to-face interviews when the data is compared (Pridemore, Damphousse, & Moore, 2005).

6.4.2. Recommendations for Future Research

Future research conducted in this topic area using similar methodology may wish to target emergency department clinicians with a broad range of experience. For example, it would be interesting to conduct comparative research between junior clinicians and more experienced clinicians to assess whether the findings differ. In this study, participants were mainly consultants, so it would be expected that they have wider clinical experience. Also during the study, the participants themselves felt suicide risk assessment was more challenging as a junior doctor and discussed clinical experience as having impacted positively on confidence and ability to conduct suicide risk assessments. Therefore, eliciting views from this group would be beneficial for further knowledge in this area, and how to improve risk assessment for more junior level clinicians specifically. Furthermore, no emergency department nurses were interviewed in the current study, and

gaining their views may be beneficial in the development and improvement of suicide risk assessment, particularly as they often conduct risk assessments in practice.

6.4.3. Conclusions

The current study has practical relevance, as it identifies the significant need for increased training for emergency department staff in acute mental health and suicide risk assessment, and according to the results of the current study, this would be principally beneficial for more junior members of staff in emergency departments. Further training would be particularly useful, especially as at present, clinicians are using suicide risk assessment tools more as an aide-memoire. The current study also highlights the importance of patient demeanour and behavioural characteristics of patients that clinicians assess for when addressing suicide risk, and as these characteristics are often missing from published risk scales, future tool development should aim to incorporate these, as should training, specifically to improve suicide risk assessment.

The study highlights the challenges that clinicians face when assessing a patient for suicide risk. Also, highlighted is the need to increase emergency department clinicians' experience of suicide risk assessment perhaps through further training for less experienced clinicians. Overall, the study gathered a unique in-depth insight into clinicians' views and experiences of suicide risk assessment in emergency department settings, and explored in more detail findings from the earlier chapters. In particular, the study captured the risk and protective factors that clinicians assess, building on the literature of earlier findings (Chapter 3 & 4), and discussed in more depth approaches to assessment, which were detailed in the preceding chapter (Chapter 5). These findings, in conjunction with the earlier chapter findings, can be used to further develop suicide risk assessment in these settings.

6.4.4. Chapter Reflections

From conducting the current qualitative study, I acquired a number of new methodological skills. This was the first time during my research career that I had conducted interviews over the telephone. As well as being a novel method, there was worry that this may impact on the results, despite previous healthcare research suggesting otherwise (Pridemore, Damphousse, & Moore, 2005). By examining the emergent themes from the current study, it was clear that there were no difference in themes between those conducted over the telephone and those conducted face-to-face, which was reassuring in terms of the validity of the research findings as a whole data set. The use of telephone interviews proved beneficial within the current study, and allowed time-limited clinicians to take part when they otherwise might not have been able. It was also cost and time efficient for me, as I could access participants in more remote areas. I also feel that my research skills improved as I became aware of issues regarding telephone interviews such as consent and storage of personal information, such as telephone numbers.

Not only was this the first time that I used telephone interviews within research, this was also the first time I had used NVivo. I had originally considered NVivo to be a quantitative software, where meaningful information from the interviews could be lost. However, once I used NVivo and attended professional training on its uses and limitations, I was able to understand its methods and limits and I realised that the researcher has to be in control of the meaning and coding of the information. Using NVivo was beneficial as it allowed me to conduct a thorough thematic analysis with the added benefit that you can use the software to track any changes in your thinking throughout the analysis, themes, and sub-themes. I found NVivo to be user friendly, and I will continue to use this software in future qualitative research. Furthermore, during the thematic

analysis stage of the current chapter, I welcomed input from my supervisory team to synthesise the initially generated themes. A member of my supervisory team has expertise in qualitative research, and their academic input facilitated the development and creation of relevant and succinct themes, which could easily be translated into recommendations for clinician and assessment improvements. The qualitative analysis underwent several iterations of grouping and regrouping themes, and I felt confident in this as it drew some parallels with the process used within the narrative reviews undertaken in Chapters 3 and 4. Due to these parallels, I also felt less frustrated at the length of time needing to be dedicated to this process of iterative theme development and this time found it to be enjoyable. This enjoyment may also have been in part due to this being the final study of the thesis and being able to observe recurrent themes appearing in the qualitative data that were present in the earlier studies, almost confirming to some degree that there were links across the studies despite their very different methodologies.

As with previous chapters, service user input would have had an added benefit for this section of the thesis but was not incorporated. In particular, to gain in-depth views from service users regarding their thoughts, feelings and experiences of risk assessment could have added a more complex dimension to the findings. However, in terms of ethical approval of this type of project, the already ambitious work of the project, and with the aim that it is clinically informed guidance, rather than service user lead guidance, none were consulted. This would however be ideal for a further research project, and possibly even as co-produced piece of work re-analysing/re-interpreting the data gathered from the current study. This re-interpretation would allow differing 'word-views' to be incorporated into the understandings of the data.

CHAPTER SEVEN: Data Triangulation: A Theory and Evidence-based Informed Approach to Developing Suicide Risk Assessment Guidance

7.1. Background

The aim of this chapter is to summarise and triangulate the key findings of the suicide risk factor and protective factor systematic reviews applicable to emergency departments (Chapter 3 & 4), the quantitative findings of this thesis (Chapter 5), which assessed current suicide risk assessment practice across Scotland, and the in-depth qualitative interviews (Chapter 6), which were conducted with a sample of emergency department clinicians. By amalgamating these findings, this will lead to a deeper understanding of the topic area (Creswell & Tashakkori, 2007). Furthermore, these findings will be combined with what is already known about suicide, and suicide risk assessment to develop theory, and evidence-based clinically informed suicide risk assessment guidance.

7.2. Triangulation Methodology

As discussed in earlier chapters, triangulation, and using a tiered amalgamation approach of evidence using systematic reviews, quantitative and qualitative information of current practice, has previously been used in the development of successful risk assessment tools in the violence risk assessment literature (e.g., the PRISM assessment; Johnstone & Cooke, 2008). This provides evidence to suggest that this is a favourable and applicable approach within the broader field of risk assessment. Therefore, this method to combine findings to inform the development of guidelines and recommendations for suicide risk assessment was chosen.

In order to conduct the triangulation of both quantitative and qualitative information from each chapter in this thesis, a ‘following-a-thread’ approach (Moran-Ellis et al., 2006;

O’Cathain et al., 2010) was employed. The following-a-thread method of triangulation was chosen as its conceptual background lies with the integration of findings and in exploring relationships between different methods (e.g., quantitative and qualitative), and it accords equal weight to the different methods used (Cronin, Alexander, Fielding, Moran-Ellis, & Thomas, 2007). This is opposed to other methods of triangulation which compare findings from different research methods to assess whether the research question has been accurately measured. The approach described by Moran-Ellis et al. (2006), has been successfully applied in previous mixed methods healthcare research (Heslehurst et al., 2015), to which the current thesis is conceptually aligned.

The ‘following-a-thread’ methodology for this thesis began with an initial analysis of emerging themes being acknowledged for each successive chapter. Key themes for each chapter were then identified as data collection progressed, and were collated into a key findings column in a triangulation matrix (Table 7.1). Each of the key findings were then conceptually aligned and compared with other findings from within the thesis and tabulated in the triangulation matrix (Table 7.1). Finally, key findings in the matrix were also related to prior research, to combine what is already known about the findings. This enabled an interrelation of findings from this thesis, as well as prior research, which led to the theory and evidence informed approach in developing guidance for the future of suicide risk assessment.

7.3. Triangulation Findings

From reviewing the triangulation matrix (Table 7.1), clear evidence was established. This included the finding that risk and protective factors of suicide have evolved (Chapter 3 & 4); in particular, in response to societal changes such as internet use, and there is a need for suicide risk assessment to reflect this. Furthermore, protective

factors are under-researched and are consistently absent from the suicide risk assessment literature, despite the current thesis finding that clinicians report using protective factors in their assessments equally to risk factors (Chapter 6). Prior research (Quinlivan et al., 2014), and the current thesis found that the majority of clinicians working in emergency departments are using either locally developed or published risk scales in their practice, which highlights a need for tools to be available for clinicians to use in practice. However, the current research consensus agrees that existing suicide risk assessment tools are unlikely to be of practical use and are unable to distinguish between low and high risk patients (Chan et al., 2016; Large et al., 2016). Clinician's in the current thesis were found to be using suicide risk assessment tools as aide-memoires, rather than as actuarial tools, alluding to the crude use of a Structured Professional Judgement approach or 'adjusted actuarial approach'. Therefore, further development of suicide risk assessment should take this into consideration, which may increase clinical usefulness. Future tools ought to be developed to be brief and clinically feasible to gain acceptance and uptake by clinicians. They should not focus on predicting suicide, but in informing and aiding the clinician's judgement.

Clinicians also expressed a great need for further training (Chapter 6), and this would enable the incorporation of new risk and protective factors findings (Chapters 3 & 4), as well as the novel finding that clinicians largely assess patient demeanour during assessment (Chapter 6), which is underrepresented in suicide risk assessment tools, and the risk assessment literature. This triangulation of both key findings from this thesis, and prior research, has led to a clear guidance being developed, which highlights the need for further development of suicide risk assessment tools that are suitable for use in emergency departments, and further specific and tailored training in suicide risk assessment for emergency department clinicians.

Table 7.1
Triangulation Matrix of Key Findings

<u>Chapter</u>	<u>Topic</u>	<u>Key Findings</u>	<u>Relation to other thesis findings</u>	<u>Relation to prior research</u>
Chapter 3: Risk Factors for Suicide	Sexual Orientation	Emerging risk factor. LGB individuals are at increased risk of suicide. Dearth of research with transgender individuals.	Suicide risk is mediated in LGB individuals with supportive families (Chapter 4).	Previously identified as a gap in the literature (McLean et al., 2008). Risk assessment tools do not contain guidelines for assessing diverse populations (Van Orden, 2012).
Chapter 3: Risk Factors for Suicide	Internet Use & Cyberbullying	Emerging risk factor. Previously not researched area. Young people learn about suicide online. Cyberbullying more strongly related to suicidal ideation than traditional bullying.	Online support can mediate risk (Chapter 4). Emergency department clinicians consider bullying as a risk factor in children and adolescents (Chapter 5).	Bullying overlooked in emergency department suicide risk assessments (Alavi et al., 2015).
Chapter 3: Risk Factors for Suicide	Parental Suicide	Bridged gap in literature risk factor. Children who lose a parent to suicide are at increased risk of suicide. Paucity of findings with other family members.	Family support can mediate suicide risk (Chapter 4).	Previously identified as a gap in the literature (McLean et al., 2008).

Chapter 3: Risk Factors for Suicide	Mental Ill Health Risk Factors	Findings support prior risk factor research that individuals with depression, mood and anxiety disorders, PTSD, and those who self-harm, are at increased risk of suicide.	Clinicians regard mental illness as a risk factor for suicide (Chapter 5 & 6).	Supports previous risk factor findings (McLean et al., 2008).
Chapter 3: Risk Factors for Suicide	Associations of Mental Ill Health	The use of SSRIs in adolescents, discharge from psychiatric hospital, and sleep disturbances in those with psychiatric disorders increased the risk of suicide.	SSRIs can also mediate suicide risk in adults and the elderly (Chapter 5).	Results support consistent findings that short-term risk for suicide is high after discharge from psychiatric hospital (Olfson, 2016).
Chapter 3: Risk Factors for Suicide	Physical Health Risk Factors	TBI increases the risk of attempts and completed suicides. Increased suicide risk for DM-1 patients compared to the general population.	Chronic illness rated as third highest risk factor of importance during assessment by clinicians (Chapter 5).	Suicide risk assessment tools (e.g., SAD PERSONS) rarely assess physical health risk factors. Supports previous chronic illness risk factor findings (McLean et al., 2008).
Chapter 3: Risk Factors for Suicide	Health Behaviour Risk Factors	Compared with never smokers, smokers have an 81% increased risk of completed suicide. Cannabis, methamphetamine, and alcohol increase the risk of suicide attempts and completions.	Clinicians regard substance misuse as a risk factor for suicide (Chapter 5), and discussed substance misuse as a risk factor in Chapter 6.	Supports previous risk factor findings for drug and alcohol misuse (McLean et al., 2008).

Chapter 3: Risk Factors for Suicide	Abuse	Individuals with a history of history abuse in both child and adulthood, and IPV had increased rates suicide risk.	Clinicians did not discuss a history of abuse (sexual, physical, emotional, neglect) as a risk factor for suicide (Chapters 5 & 6).	Supports previous risk factor findings (McLean et al., 2008). Bullying overlooked in emergency department suicide risk assessments (Alavi et al., 2015).
Chapter 3: Risk Factors for Suicide	Employment	Suicide risk is increased during unemployment, with highest odds for those unemployed less than five years.	Clinicians regard unemployment as a risk factor of suicide (Chapter 5). Clinicians discussed unemployment as a risk factor in Chapter 6.	Supports previous risk factor findings (McLean et al., 2008).
Chapter 3: Risk Factors for Suicide	Access to Suicide Methods	Increased firearm access increases the risk of suicide.	Clinicians discussed this as a risk factor in Chapter 6.	An effective strategy for preventing suicide is to restrict access to the most common means, including firearms (WHO, 2014).
Chapter 4: Protective Factors	Limited findings for protective factors	Limited findings for protective factors. Further research is needed.	Chapter 3 identified 35 high-quality reviews, whereas Chapter 4 identified only eight. Protective factors are seemingly assessed equally by clinicians (Chapter 6).	Protective factors have been relatively under-researched and have not been studied as extensively or rigorously as risk factors (CDC, 2015).

Chapter Protective Factors	4: Social Support	Social support networks are pivotal to overcoming being suicidal. Social support can mediate suicide risk in veterans.	Clinicians discussed social support as a protective factor of suicide (Chapter 6).	Supports previous protective factor findings (McLean et al., 2008).
Chapter Protective Factors	4: Online Support	Emerging protective factor. Internet forums have been found to have a positive effect on suicide, where users seek support and connect with others.	The internet can serve as both a risk (Chapter 3) and a protective factor.	Support from virtual social communities can have positive effects on adolescent suicidality, although negative effects can be encountered (Tseng & Yang, 2015).
Chapter Protective Factors	4: Family	Marriage is a protective factor for suicide in veterans, although not for veterans with PTSD. Having young children mediates suicide risk.	Family and at home support discussed as a protective factor (Chapter 6).	Supports previous protective factor findings (McLean et al., 2008).
Chapter Protective Factors	4: Sexuality	Suicide risk is mediated in LGB youths with supportive parents. No findings for transgender individuals.	LGB individuals are at increased risk of suicide (Chapter 3).	Perceived family support negatively correlates with suicide attempt history (Mustanski & Liu, 2013).
Chapter Protective Factors	4: Health	SSRIs have a protective effect of suicide in adults and elderly with depression. Pregnancy also protects against suicide risk.	SSRIs can act as a risk factor in adolescents (Chapter 3).	SSRIs can reduce risk of suicide in older adults with depression (Crumpacker, 2008).

Chapter 5: Current Suicide Risk Assessment Practice	Methods of assessment	Two thirds of clinician participants use suicide risk assessment tools (locally developed and SAD PERSONS). The remainder use clinical judgement.		Supports prior findings that a variety of suicide risk assessment tools are used in the emergency department (Quinlivan et al., 2014).
Chapter 5: Current Suicide Risk Assessment Practice	Protocols & Guidelines	There was a disagreement of results whether tools were a requirement, indicating a need for clearer guidelines.	Results of Chapter 6 found that clinicians use suicide risk assessment tools as a form of legal protection and evidence of clinical decision-making.	There are a lack of guidelines in emergency departments (Quinlivan et al., 2014).
Chapter 5: Current Suicide Risk Assessment Practice	Training	Over 70% of those who do not use suicide risk assessment tools agreed that they had not been trained in their use, and 50% of those who do use tools also agreed they had not been trained in their use.	Findings from Chapter 6 indicate a great need for training in acute mental health and suicide risk assessment.	Post-qualification training in mental health is limited for emergency department clinicians (Giordano et al., 2009).
Chapter 5: Current Suicide Risk Assessment Practice	Clinical Decision-Making	84.8% of clinicians who do use suicide risk assessment tools agreed that using a tool helped them to make decisions; 91.2% agreed that suicide risk assessment tools help them to inform patient care and management.	The use of suicide risk assessment tools can be beneficial in developing clinical decision-making experience (Chapter 6).	The SAD PERSONS scale can be a useful aide-memoire for assessing suicide risk (Tate & Feeney, 2016).

Chapter 5: Current Suicide Risk Assessment Practice	Accountability	84.4% agreed they use suicide risk assessment tools as they felt it would protect them if there was ever a case regarding their decision.	Clinicians discussed accountability for patient suicide, and that suicide risk assessment tools can act as evidence of clinical decision-making (Chapter 6).	Clinical decision-making is influenced by external forces e.g., professional accountability (Higgs & Jones, 2008).
Chapter 5: Current Suicide Risk Assessment Practice	Confidence in Assessment	Clinicians were more confident using a suicide risk tool to inform their clinical judgement, or using clinical judgement alone, than using a risk tool alone.	Clinicians find suicide risk assessment to be a challenging part of their role (Chapter 6).	Training and development of clinical guidelines can improve confidence in assessing and managing clinical risks (Delgadillo et al., 2014).
Chapter 5: Current Suicide Risk Assessment Practice	Risk Factor Importance	Participants rated mental illness, drug misuse, alcohol misuse, and personality as the most important risk factors they assess for, and rated biological and genetic risk factors as the least important.	Risk factors that are not feasible to assess e.g., biological and genetic risk factors, are considered least important, which endorses the method used in both Chapters 3 & 4. Concurs with risk factors discussed by clinicians in Chapter 6.	Psychiatric disorders, personality, and substance abuse are major risk factors (Schreiber et al., 2015). Biological risk factors e.g., hormones are not significant in predicting suicide (Chang et al., 2016).
Chapter 5: Current Suicide Risk Assessment Practice	Suicide Risk Items Factor Analysis	Analyses revealed three risk factor categories which clinicians assess for risk: dynamic risk factors for health, and social problems, and static risk factors.	The findings support the risk factor categories in Chapter 3, and were discussed by clinicians in Chapter 6.	Supports Bouch and Marshall (2005) categorisation of both dynamic and static risk factor groupings.

Chapter 5: Current Suicide Risk Assessment Practice	Fast-and-frugal Decision Tree	Clinicians who use tools make risk decisions with one cue (self-harm; dynamic risk factor relating to health). Non-tool users required up to four cues. Indicates clinicians use fast-and-frugal processes to form decisions, and tool users are more frugal in their information use.	Aligns with findings of the Principal Component Factor Analysis (Chapter 5).	Fast-and-frugal trees have been used in healthcare assessments (Green & Mehr, 1997), and in mental health assessments (Jenny et al., 2013), and perform favourably.
Chapter 5: Current Suicide Risk Assessment Practice	Children & Adolescents	Most clinicians (72.5%) would assess a child or adolescent differently to an adult, and would include different risk factors; and home, social and educational factors.	Clinicians discussed the marked difference in the child/adolescent population (Chapter 6). Clinicians recommend that risk assessment should focus on adult populations (Chapter 6).	Tools have been developed for use with children and adolescents e.g., the SIQ (Reynolds, 1987). Suicide rates are higher for those above 30 years (Samaritans, 2016).
Chapter 6: Experiences of Suicide Risk Assessment	Current Experiences of Suicide Risk Assessment	Suicidal patients are seen frequently. Newly qualified clinicians find assessment challenging and time consuming. Clinicians are worried that discharged individuals may complete suicide, and that they are accountable for this. Out of hours support is limited.	The majority of those who use suicide risk assessment tools agree that it provides evidence that would protect them if there was a case regarding their decision-making (Chapter 5).	Suicide risk assessment has been found to be a challenging and time consuming (Petrik et al., 2015), especially for junior doctors (Gordon, 2012).

Chapter 6: Experiences of Suicide Risk Assessment	Suicide Risk Assessment Tools	The majority of participants described using a suicide risk assessment tool as an aide-memoire, without necessarily using the scoring system.	This aligns with the Structured Professional Judgement approach (Chapter 1).	The SAD PERSONS scale can be a useful aide-memoire for assessing suicide risk (Tate & Feeney, 2016).
Chapter 6: Experiences of Suicide Risk Assessment	Training	There is limited mental health training, especially in suicide risk assessment specifically. There is a need for tailored and focused training, particularly for those who are new to emergency departments.	Over 70% who do not use suicide risk assessment tools agreed that they had not been trained in using tools, and 50% who do use suicide risk assessment tools had not been trained to use them (Chapter 5).	There is a lack of training (Michail & Tait, 2016; Petrik et al., 2015). Clinicians may benefit from additional assessment training (Ronquillo et al., 2012).
Chapter 6: Experiences of Suicide Risk Assessment	Patient Demeanour	Patient demeanour is often assessed, such as interaction and behavioural cues e.g., patients being withdrawn, distraction, confusion, eye contact, and patient attire.	Interaction at consultation discussed by participants in risk factors identified as important (Chapter 5).	Patient behaviours and non-verbal cues are briefly mentioned in BMJ guidelines (BMJ Best Practice, 2016), however are rarely considered in risk assessment tools.
Chapter 6: Experiences of Suicide Risk Assessment	Risk Factors	Most commonly reported were suicide methodology; mental illness; substance and alcohol misuse; home environment. Other risk factors included not showing	Concurs with the suicide risk factor systematic review findings (Chapter 3), and risk factor ratings (Chapter 5).	Supports previous risk factor findings (McLean et al., 2008).

		regret after an attempt; being unemployed; male; and socially isolated.		
Chapter 6: Experiences of Suicide Risk Assessment	Protective Factors	Clinicians discussed protective factors equally to risk factors. Protective factors that clinicians assess for include, future planning, and having home or family support.	Concurs with findings of the protective factor systematic review (Chapter 4).	Contradicts findings that protective factors overlooked (Simon, 2011). Tools and training do not reflect equal assessment of protective factors. Assessing protective factors provides an essential assessment balance (Simon, 2010).
Chapter 6: Experiences of Suicide Risk Assessment	Clinical Decision-Making	Clinical experience is beneficial. Junior staff find assessment difficult due to lack of experience. Suicide risk assessment tools and pro-formas can help develop clinical experience.	The majority of those who do use suicide risk assessment tools agreed that using a tool helped them to make decisions about patients (Chapter 5).	Decisions are based on experience (Gambrell, 2005). Experience increases confidence (Hay et al., 2008). Junior doctors lack confidence (Gordon, 2012).
Chapter 6: Experiences of Suicide Risk Assessment	Suicide Risk Assessment Tool Recommendations	Suicide risk assessment in emergency departments needs to be a brief, focused, triage and referral tool. Need for outcome guidance, and a need to be validated.		Recently developed suicide risk assessment tools have included outcome guidance (e.g., SAFE-T, Jacobs, 2011).

7.3.1. An Evidenced-Based Approach to Suicide Risk Assessment Tools

A major finding of the current thesis is the need for further development of suicide risk assessment tools designed for use in emergency settings. The triangulation matrix (Table 7.1), developed from the findings of this thesis, identified key components (Table 7.2) relating to suicide risk assessment which can be utilised into future clinically informed and evidence-based development of suicide risk assessment tools for use in emergency departments.

Table 7.2

Recommendations for Developing Suicide Risk Assessment Tools

Guidelines	Clearer guidelines for the appropriate use of suicide risk assessment tools.
Risk & Protective Factors	Update suicide risk assessment tools to reflect recent changes in suicide risk and protective factors.
Patient Demeanour	Include patient demeanour as a key component of assessment including interaction and behavioural cues e.g., patients being withdrawn, distraction, confusion, eye contact, and patient attire, to improve recording practices for these tacit factors that affect judgment.
Structured Professional Judgement Tools	Clinicians are using a simplified version of this approach, further development of tools should consider this.

The current thesis identified the need for clearer guidelines for suicide risk assessment in emergency departments. At present, there is relatively limited guidelines on conducting suicide risk assessments in emergency departments in both Scotland and the UK. Department pro-formas are recommended as a department strategy by The College of Emergency Medicine (2013). However, Royal College of Psychiatrists (2010)

recommend that locally developed risk assessment tools should be abandoned, as risk assessment tools should be evidence-based and widely validated. The NICE (2016) guidelines discuss that risk assessment tools may be considered to help structure risk assessments, but state that risk assessment tools and scales should not be used to predict future suicide or repetition of self-harm, or to determine who should and should not be offered treatment or who should be discharged. This shows the conflicting information and guidelines on offer with regards to risk assessment, which may be a factor in explaining the disagreement between emergency department clinicians as to whether the use of a suicide risk assessment tool was a requirement in their workplace (Chapter 5). Therefore, clearer and consistent guidelines need to be developed. For clearer guidelines to be developed, first some form of consensus over the form of risk assessment (e.g., actuarial, Structured Professional Judgement, decision tree etc.) must first be established. With the continued focus on prediction in suicide research, despite the recognised lack of utility of this type of approach, this consensus is likely to be some way off.

Franklin et al. (2016) conducted a meta-analysis of 365 studies from the past 50 years and found that suicide prediction was only slightly better than chance, and suggested a need to shift focus from risk factors to machine learning-based risk algorithms. Franklin (2016) recently discussed that in the past two years, multiple groups have begun working on developing machine learning algorithms to combine tens or even hundreds of risk factors together to predict suicidal behaviours with promising preliminary results, with algorithms predicting suicidal behaviours with greater than 80% accuracy. Although Franklin notes this work is just in its initial phases. However, with the finding from the current thesis that clinicians are using both a fast-and-frugal approach and an adjusted form of Structured Professional Judgement, one recommendation would be that future research ought to work with these preferred assessment and decision making

approaches to develop suicide risk assessment tools. This would allow for evidence-based tool development that is also informed by clinically feasible and acceptable forms of suicide risk assessment evidence.

A major finding of the current thesis was the evolution of suicide risk and protective factors. The current thesis identified emerging risk and protective factors (Chapter 3 & 4) in the suicide literature, for example sexual orientation. Current suicide risk assessment tools do not contain guidelines for assessment with diverse patient populations (e.g. LGBT) (Van Orden, 2012), and the results of this thesis found that the most commonly used published suicide risk assessment scale in emergency departments across Scotland is SAD PERSONS (Chapter 5), which does not assess for diverse populations. Future development of tools and assessment should consider recent additions to the risk and protective factor literature, and develop them accordingly. However, as previously discussed as a limitation in Chapter 5, sexuality, parental suicide, and childhood maltreatment were identified as risk factors in Chapter 3, and were not included in the subsequent ranking list of importance for clinicians in Chapter 5. Clinicians also did not write these in as other important factors that they assess for within the free text response box area (Chapter 5). Furthermore, clinicians did not discuss these risk factors as something they assess for during the qualitative interviews in the following chapter (Chapter 6). Thus, it difficult to gauge whether these risk factors would be useful to include in any future development of suicide risk assessment measures or guidelines. It may be the case that due to these risk factors being relatively new within the risk assessment literature (or ‘emerging’), that even participants who were engaged and actively interested in the topic area may not have been aware of these. Therefore, further research is needed in these areas to assess whether their inclusion in suicide risk

assessment would be beneficial to the overall outcome of the assessment, and greater training to raise awareness of emergent risk factors is recommended.

By conducting research directly with emergency department clinicians, this thesis found that protective factors are assessed equally to risk factors (Chapter 6). However, protective factors have been relatively under-researched and have not been studied as extensively or rigorously as risk factors (CDC, 2015). The risk factor review included in this thesis (Chapter 3) identified 35 high-quality articles, whereas the protective factor review (Chapter 4) identified only eight high quality articles, again highlighting an increasing need for further research into this area. Moreover, suicide risk assessment tools rarely incorporate protective factors. Risk assessment tools in the wider violence risk assessment literature have already been utilising this need for the inclusion of protective factors (de Vries Robbé, 2014), and have developed risk guidelines solely based on a strength-based approach of protective factors (e.g., the SAPROF; de Vogel et al., 2007). Continued effort to incorporate protective factors into suicide risk assessment should be encouraged, particularly as clinicians frequently assess these (Chapter 6). Furthermore, the interrelation between risk and protective factors should be considered. For example, emerging suicide risk literature findings are such that LGB individuals are at an increased risk of suicide (Chapter 3), however suicide risk is mediated in LGB individuals with supportive families (Chapter 4). Cyberbullying, which has previously found to be overlooked in emergency department suicide risk assessments (Alavi et al., 2015), has also been newly discussed in the risk factor literature (Chapter 3). However, online support can mediate suicide risk (Chapter 4). It is therefore clear that risk factors and protective factors for suicide do not exist in a vacuum, and a complex relationship may exist for some individuals, with factors possibly existing on a continuum. Therefore, this interrelation should be considered in the development of assessment.

A further key component identified within this thesis, which could be utilised into suicide risk assessment tools for emergency departments, is patient demeanour. Findings of the in-depth qualitative interviews identified that clinicians frequently use patient demeanour as a means to assess patients (Chapter 6). For example, this can include interaction and behavioural cues, such as patients being withdrawn, distraction, confusion, eye contact, and patient attire. Patient demeanour is at present largely overlooked in frequently used suicide risk assessment tools (e.g., SAD PERSONS; Patterson et al., 1983). The BMJ Best Practice (2016) suicide risk management guidelines briefly mention patient behaviours and non-verbal cues. However, given the extent of discussion during the clinician interviews (Chapter 6) of these characteristics, current tools and guidelines do not reflect this. Therefore, further development of tools should account for this, and more research investigating the relevance and utility of these tacit-type measures should be carried out. Indeed, in training and manual instructions for generalised violence risk assessment measures (e.g., the HCR-20, SAPROF), patient/client demeanour is noted as a key aspect when carrying out the clinical assessment. However, as the evidence base is relatively weak for the inclusion of these observable factors, more detailed research (both quantitative and qualitative) is needed to establish the utility of these within clinical assessments of suicide risk. In particular as discussed in Chapter 1, that the use of these in assessment without appropriate evidence may lead to a risk of bias using the representativeness heuristic, thus a patient meeting a clinician's stereotype of a suicidal person would be more likely to be assessed as high risk, than those who do not represent the stereotype (Tversky & Kahneman, 1974).

A major key finding of the current thesis identified that around two thirds of emergency department clinicians in Scotland are using suicide risk assessment tools as part of their current practice, with the majority being locally developed risk assessments

and pro-formas. This indicates there is still a market for formal suicide risk assessment tools. However, when conducting further in-depth research with clinicians, tools were reportedly used as an aide-memoire (Chapter 6), indicating that tools may serve more as a checklist, with scoring used as a guideline, rather than an actuarial decision-making tool. This aligns to some degree with the Structured Professional Judgement approach to suicide risk assessment (Bouch & Marshall, 2005), as clinicians are combining evidence for risk factors with individualised patient assessment, and empirical knowledge and clinical expertise (Flewett, 2010). This supports the BPS (2006) guidelines, that good risk assessment and management practice should combine structured clinical judgement and actuarial approaches, for a Structured Professional Judgement approach.

As discussed in Chapter 1, Structured Professional Judgement approaches have been used to develop suicide risk assessment measures (e.g., the S-RAMM; Bouch & Marshall, 2003), although they have not been widely used in clinical practice due to their time consuming nature (Khadivi et al., 2008). While this is certainly not feasible for use in emergency department settings, as evidenced within this thesis, this approach is being utilised though to an adapted manner using tools which are either not validated or which have not been validated for use in this way. Therefore, adapted Structured Professional Judgement measures should be developed using approaches to decision-making that can be feasibly used in these settings, such as fast-and-frugal approaches. Fast-and-frugal heuristics have been recently developed into clinical decision-making risk assessment procedures, using fast-and-frugal decision-making trees, with preliminary results showing that they perform favourably (Jenny et al., 2013). Furthermore, fast-and-frugal models have been shown to be easier to convey to healthcare professionals, and are more psychologically plausible (Dhimi & Harries, 2001). This indicates that this type of clinician decision-making can potentially be developed into Structured Professional

Judgement approaches to suicide risk assessment, to improve the feasibility of its use in emergency department settings, particularly as research finds that Structured Professional Judgment is easy to use (O'Dwyer, 2011). Therefore, further development using fast-and-frugal approaches may lessen the time consuming nature (Khadivi et al., 2008).

After interviewing clinicians for the current thesis, more experienced clinicians recommended that less experienced and junior clinicians use risk assessment tools in order to conduct a thorough assessment (Chapter 6), again indicating a need for their use. Given the myriad of reviews and meta-analyses that have established that suicide risk assessment tools are unreliable (Carter, Milner, McGill, Pirkis, Kapur, & Spittal, 2017; Chan et al., 2016; Large et al., 2016), and cannot distinguish between high and low risk suicide risk in patients (Large et al., 2016), developing tools with this adapted Structured Professional Judgment approach may ensure more accurate assessment. Furthermore the skills needed to perform Structured Professional Judgment, such as clinical experience, could be developed through further training, which will be discussed below.

7.3.2. An Evidenced-based Approach to Suicide Risk Assessment Training

A major finding of the current thesis is the need for further tailored suicide risk assessment training specifically for emergency department clinicians. The triangulation matrix (Table 7.1), developed from the findings of this thesis, identified key components (Table 7.3) relating to suicide risk assessment training which can be utilised into the development of clinically informed and evidence-based suicide risk assessment training specifically for emergency department clinicians.

Table 7.3

Recommendations of Inclusions for Emergency Department Suicide Risk Assessment Training

Risk Factors	Include known risk factors, and newly emerging risk factors including LGB populations and internet usage (e.g., cyberbullying).
Protective Factors	Include known protective factors, and newly emerging protective factors including support for LGB individuals, and online support.
Patient Demeanour	Include patient demeanour as a component of assessment including interaction and behavioural cues (e.g., patients being withdrawn, distraction, confusion, eye contact, and patient attire).
Developing Clinical Experience	Communication and conversational experience; improving clinical decision-making skills.

One of the key components (Table 7.3) identified in this thesis relating to suicide risk assessment training, is the need to update any future training to reflect recent developments and new findings in the suicide risk assessment literature. For example, the current thesis concurred with prior research and supported the existence of suicide risk factors (Chapter 3) e.g., mental ill health, physical illness, and abuse. The thesis also identified emerging risk factors including sexual orientation, with LGB having a greater risk of suicide. Van Orden (2012) has noted that suicide risk assessment tools do not contain guidelines for assessment with diverse patient populations e.g., sexual orientation, and risk in this population is something that should be considered in training. Internet usage has also emerged as risk factor for suicide, particularly cyberbullying. At present, bullying is being overlooked in emergency department suicide risk assessments (Alavi et al., 2015), therefore the development of training should incorporate these newly identified risk factors. Conversely however, there is a paucity of research investigating protective factors that mediate suicide risk in the suicide literature, and risk assessment literature

(CDC, 2015), and the lack of research was evident within this thesis (Chapter 4). The current thesis also found that protective factors were being assessed equally by clinicians as risk factors (Chapter 6). This indicates that protective factors should be further addressed in training.

The current thesis identified that over 70% of those who do not use suicide risk assessment tools agreed that they had not been trained in using tools (Chapter 5), and 50% of those who do use suicide risk assessment tools had not been trained to use them (Chapter 5). Furthermore, during the in-depth qualitative interviews (Chapter 6), clinicians discussed the need for tailored and focused training, in particular for those who are newly qualified and new to working in the emergency department. This is not a unique finding, as prior research has found that post-qualification training in mental health is limited for emergency department clinicians (Giordano & Stichler, 2009). Moreover, McAllister, Billett, Moyle and Zimmer-Gembeck (2009) found that few nurses receive training to assess for suicide, or have suicide training available as part of their emergency department orientation. This highlights a clear need for further mental health, and specifically suicide risk assessment training for emergency department clinicians.

Ronquillo, Minassian, Vilke and Wilson (2012) conducted a systematic review of 51 articles aiming to determine important elements of suicide risk assessment in emergency departments. The authors concluded that emergency department professionals may benefit from additional suicide assessment training. For example, further training may be beneficial in increasing clinician confidence in assessing for suicide risk. The results of this current thesis found that clinicians did not self-report high levels of confidence when assessing for suicide risk, either using a risk assessment tool or clinical

judgment alone, or using a risk assessment tool to inform clinical judgment (Chapter 5), with most confidence ratings on a scale of one to ten, scoring seven or below.

Petrik et al. (2015) recently found that emergency department clinicians who believe they have a lack of training and a lack of continuing education are fearful, and prefer to consult a mental health specialist to assess for risk. However, findings show that training and development of clinical guidelines can improve mental health practitioners' confidence in assessing and managing clinical risks (Delgadillo et al., 2014). Devlin (2016) has also found that training in the use of mental health assessment tools specific to emergency settings can increase confidence in the use of these tools. This indicates that further training can improve clinician confidence. Furthermore, results of clinician interviews within this current thesis identified that training would be beneficial for newly qualified staff (Chapter 6). Recent research surveying skills and confidence of junior doctors in emergency medicine found that 28 of 32 junior doctors received no psychiatry training after qualifying from medical school. Nine junior doctors in the sample also stated they were not confident about seeing psychiatric patients in the emergency department (Gordon, 2012). Providing further training for junior clinicians could increase clinical experience which may aid in clinical decision-making due to the lack of acquired experience.

A further key component identified within this thesis which could be incorporated into suicide risk assessment training for emergency department clinicians is patient demeanour when assessing a patient for suicide risk. Findings of the in-depth qualitative interviews identified that clinicians frequently use patient demeanour as a means to assess patients (Chapter 6). For example, this can include interaction and behavioural cues e.g., patients being withdrawn, distraction, confusion, eye contact, and patient attire.

Therefore, training in suicide risk assessment should incorporate a key component regarding patient demeanour and patient behaviour during assessments. In a recent paper addressing suicide prevention for physicians (Cole-King & Platt, 2017), it is suggested to be aware of patient body language. However, the type of body language is not expanded upon, thus further research identifying clinically informative patient demeanour may be useful prior to utilising it into training. Vignette or simulation training could be utilised for training of this key component, as prior suicide risk assessment training with the use of vignettes has been shown to be successful in improving clinical documentation, risk assessment and risk management (McNiel et al., 2008).

Another key component identified that could be improved with training is developing clinical experience. Silverman and Berman (2014) recently found that although suicide risk assessment is a core competency requirement for psychiatrists, that many lacked the training and skills to appropriately assess for suicide risk. This was reiterated by a participant in the qualitative findings of this thesis, who discussed that even psychiatrists find this work challenging despite it being their specialism (Chapter 6). This shows a definite need of training for clinicians to increase their experience of assessment. More experienced clinicians in the current thesis discussed using a more conversational format during suicide risk assessment (Chapter 6). This aligns with prior results by Petrik et al. (2015), who found that emergency department clinicians find conversational format to be an efficient and effective method of discussing suicide risk with patients. Increasing training, and designing it to improve communication skills with patients, may have a beneficial impact on patient and clinician communication during assessment. Donley (2015) conducted research with 20 service users in Australia regarding their experiences of suicide risk assessment in the emergency department. Results found that clinical and interpersonal skills of the clinicians have a significant

impact on the experience the service user has with risk assessment and outcomes. Analysis also revealed that having time to talk and being listened to was helpful in assessment. This indicates that clinician-service user rapport and communication can benefit the experiences of the patient, and this type of training may be valuable for newly qualified, and less experienced emergency department staff.

A further component of clinical experience is developing clinical decision-making. Desmond, Brubaker and Ellner (2013) explored the lack of decision-making strategies implemented in healthcare, and suggested that healthcare providers should be trained in decision science. Further suggested was the re-structuring of pre-clinical and clinical training to include robust and rigorous training in human systems and social sciences. Jefferies-Sewell (2015) conducted a study of an educational intervention to raise awareness of decision-making processes, and to enhance the clinical decision-making process among NHS Mental Health Professionals. Pre- and post-intervention analyses identified an improvement in knowledge of decision-making bias and statistical concepts. The findings support the use of educational approaches to raise awareness about the decision-making process. However, Thompson and Stapley (2011) found mixed results for the efficacy of educational interventions in decision-making and diagnostic reasoning in improving clinical judgment, though the educational interventions included in the review were heterogeneous, and were not focused on suicide or risk assessment. This indicates a need for further research to be undertaken exploring clinical decision-making in suicide risk assessment in training purposes.

At present, there are training packages available for mental health, and prior research has been conducted evaluating a mental health training programme for emergency department staff which found positive outcomes (Stuhlmiller et al., 2004).

Mann et al. (2005) found that physician education in depression recognition was able to prevent suicide. This again highlights the positive impact that training can have on practice. However, as discussed in Chapter 6, any training session that has the potential to be rolled-out to improve care must be fully evidenced-based. Applied Suicide Intervention Skills Training (ASIST) (LivingWorks, 2016) is a commonly used training package used by healthcare professionals in Scotland. ASIST is a two-day interactive workshop in suicide first aid, which teaches participants to recognise suicidal thoughts and to create safety plans. Gould, Cross, Pisani, Munfakh and Kleinman (2013) evaluated ASIST using a randomised trial design of a crisis call centre. Callers were significantly more likely to feel less depressed, less suicidal, less overwhelmed, and more hopeful by the end of calls handled by ASIST-trained counsellors. However, ASIST training did not yield more comprehensive suicide risk assessments and most of the counsellor interventions that were assessed did not differ between ASIST-trained counsellors and counsellors in the wait-listed condition. Although this highlights improved outcomes, it is not specific to healthcare professionals. Smith, Silva, Covington, Joiner and Thomas (2014) conducted a healthcare worker group comparison which included clinicians, administrators, nurses and support staff, and found that those who had received ASIST training outperformed those who had not in their knowledge about suicidal behaviour and confidence in their skills. These are positive findings, even though they are not exclusive to emergency healthcare clinicians.

The training package safeTALK was discussed by a participant in the current thesis (Chapter 6). However, in a recent systematic review of global literature, limited research studies were found investigating the evidence of the effectiveness of safeTALK and of the six studies identified, only one was peer-reviewed (Kutcher et al., 2016). Not one study reported on the impact of training on suicide attempts, emergency room visits for

suicide attempts, or suicide rates. The review further indicated that the entire global dataset in the peer-reviewed literature on the effectiveness of safeTALK is based on one study of 17 veterinary students in Scotland. This further highlights that training is based on weak evidence, and there is a need for critical evaluation of training packages designed for suicide assessment and prevention. The development of a training package which is specific to emergency department settings that is fully-evidenced based and formally validated and evaluated is clearly needed.

7.4. Further Research

It is evident from the triangulation findings that further research is needed. In line with the findings, this would involve the development of an adjusted Structured Professional Judgement suicide risk assessment tool, which is suitable for use in emergency department settings, and which incorporates the findings of the thesis such as updated risk and protective factors of suicide, and the need to assess patient demeanour within assessments. Such a measure would need to be fast, and simple to use, and incorporating fast-and-frugal decision tree analysis to reduce the number of factors included in the measure, to include those evidence-based factors which clinicians actually find helpful/use in assessments in their naturalistic decision making may be a way forward in this tool development. Furthermore, research should explore the development of suicide risk assessment training specific for use in emergency departments. As with the development of any new assessment tool or measure, specific training appropriate to the measure and target audience/environment should be developed in consort to improve clinician expertise development, including the understanding of clinical decision-making.

Any development involving suicide risk assessment, or training for emergency departments may wish to consider to expand the involvement of service users, which this

thesis did not cover. Participation by patients in healthcare consultations and decision-making is central to health policy in the UK (Gask & Coventry, 2012). Findings consistently show that service user involvement in mental health services research and care delivery has a positive impact on patient care (Ennis & Wykes, 2013; Omeni, Barnes, MacDonald, Crawford, & Rose, 2014). Service user involvement into the development of assessment and training may lead to an improvement that patients have of the clinical encounter, which Cole-King and Platt (2017) identify as a protective factor in suicide risk assessment. Therefore, the involvement of service users is imperative to develop and improve suicide risk assessment practices.

7.5. Conclusions

To conclude, assessing the risk of suicide is an extremely difficult and complex task when applied to the individual (Cochrane-Brink et al., 2000). However, this triangulation of updated risk and protective factors, current suicide risk assessment practices, and in-depth clinician experience of suicide risk assessment, provides a precursory evidence-base that can be utilised into suicide risk assessment tools and training development to aid in the improvement of the assessment process. This follows the MRC (2006) systematic guidelines of developing complex interventions, by firstly identifying the evidence-base and developing theory. The triangulation has identified that further development of suicide risk assessment tools should be considered, however given their lack of clinical use at present, that they should be developed using Structured Professional Judgment principals integrated with a fast-and-frugal approach, for use in emergency departments. The thesis triangulation further identified a clear need for increased and tailored training for suicide risk assessment in emergency departments. Lastly, further input and research gaining the views of service users may be beneficial in developing a

concrete evidence-base to develop suicide risk assessment further that is specific to emergency department settings.

7.6. Chapter Reflections

The current chapter allowed for the amalgamation of the findings of the thesis with the aim to develop overall recommendations and guidelines for suicide risk assessment in emergency healthcare settings. During this chapter, the ‘following-a-thread’ method of triangulation which has previously been used in healthcare research was utilised. The use of this method allowed for the systematic integration of findings throughout the whole thesis, which enabled for the development of clear findings that will be discussed in the following chapter (Chapter 8). I found this method to be beneficial as it produced a methodical and simplified approach to triangulation which was welcomed, given the overwhelming number of findings in a very broad thesis. The use of this triangulation method has improved my research skills, and, in particular, my skills of conducting and analysing mixed-method findings. Furthermore, after the creation of the triangulation matrix included in this chapter, I was able to reflect upon the amount of work that has been produced as part of this thesis.

The thesis scope, use of multiple and very different methods, and my strict ambition to complete all of this well within the timescale was incredibly ambitious. While I am very proud of the work that has been carried out and completed, after looking at the matrix, I reflected that I could have perhaps taken just a little more time to ‘digest’ the data as a whole or could have possibly incorporated a steering group early on to prioritise the programme of work. However, that said, all of the components of the research added to the whole and each sum of the overall part was equally important to developing the final conclusions and guidelines emergent from the thesis. Also, as the matrix applied

existing literature to the thesis findings, this allowed me to consider where the current research fits in the suicide literature, and how findings could be applied, which will be explored in the proceeding chapter (Chapter 8).

CHAPTER EIGHT: Thesis Conclusion and Recommendations

8.1. Overview of the Findings

Due to the broad nature of suicide research and suicide risk assessment research, the earlier chapters in this thesis endeavoured to update the existing literature which may have been impacted as a result of social, cultural and economic changes. This was carried out by conducting systematic reviews to explore risk and protective factors for suicide in Chapters 3 and 4 respectively. The thesis then sought to investigate current suicide risk assessment practices in emergency departments to determine empirical findings of on the ground practice, and also uniquely sought the individual experiences clinicians have of suicide risk assessment through qualitative research (Chapter 5 & 6).

Chapter 3 explored risk factors of suicidal ideation, suicidal behaviour, and suicide that are applicable to assessment in emergency departments: risk factors that can easily and feasibly assessed in these settings. A total of 35 review articles were identified and results coincided with what was already known about suicide risk factors, for example that mental ill health, physical ill health, and access to means increases the risk of suicide and suicidal behaviours. However, the review identified new risk factors of suicide that emerged from the literature. This included increased suicide risk in LGB individuals (King et al., 2008; Pompili et al., 2014b), and risk in those who learn about suicide online, or who are either the victim or perpetrator of cyberbullying (Diane et al., 2013).

Replicating the methods of Chapter 3, a systematic review of protective factors for suicidal ideation, suicidal behaviour, and suicide, that can easily be assessed in emergency departments was also investigated (Chapter 4). Eight reviews were included in the narrative synthesis, and as with the risk factor review, the findings concurred with prior research and found that having adequate social support and a supportive family can

mediate suicide risk and act as protective factors. However, the review also identified emerging protective factors similar to those identified in the earlier risk factor review, namely sexual orientation and internet usage. For example, findings indicated that suicide risk was mediated in LGB individuals with supportive families (Bouris et al., 2010), and that having online support may have positive influences on young people at risk of suicide (Diane et al., 2013).

The first of the empirical studies included in this thesis aimed to explore current suicide risk assessment practices in emergency departments (Chapter 5), as prior to the development of suicide risk assessment tools in emergency departments, current practice had to be established. This helps to identify what kinds of measures and processes are feasibly used already in practice. The study found substantial variation in practice. For example, around two-thirds of emergency department clinicians used a suicide risk assessment tool in their workplace (most commonly a locally developed pro-forma, or the SAD PERSONS scale), the remaining third did not. Around half of those who used a suicide risk assessment tool in their practice stated that it was a workplace requirement, and remaining participants stated it was not a requirement or did not know. Clinicians working in the same emergency departments disagreed as to whether using a tool was a requirement in their hospital, indicating variation within the same emergency department. Decision making processes were investigated for both tool users and non-tool users, and it was found that, for both groups, 'frugal' decision making processes were applied, with clinicians satisfied at between one to four risk factors. Thus, naturalistic decision making in suicide risk assessment (the use of clinical judgement alone) would lead to an assessment based on few cues. These cues were all of a dynamic nature, including self-harm, chronic illness, and alcohol and drug misuse. What this analysis could not answer,

however, was the clinical effectiveness of this decision-making model in assessing suicide risk.

After completion of the nationwide survey of current practice, clinician interviews were conducted to gain a further in-depth insight into current suicide risk assessment practices (Chapter 6). Results of the qualitative study identified four unique major themes of suicide risk assessment practice including, current experiences of suicide risk assessment; components of suicide risk assessment; clinical decision-making; and suicide risk assessment needs. The study identified a significant need for increased training for emergency department staff, and in particular, junior members of staff, in acute mental health and suicide risk to increase clinical experience. The study highlighted the importance of patient demeanour in clinical risk assessment and how future suicide risk assessment and training development should incorporate this. The chapter also highlighted the need for further development and improvement of current suicide risk assessment in emergency departments.

The findings of Chapters 3-6 were then triangulated (Chapter 7), using a following-a-thread methodology. Findings from each chapter were compared with other findings from across the thesis. These were then integrated with findings from prior research and collated into a triangulation matrix (Table 7.1). Using the triangulation matrix, recommendations for the development of suicide risk assessment were made, and included, the development of suicide risk assessment tools specific for use in emergency departments, and the development and delivery of suicide risk assessment training.

8.2. Contribution to the Suicide Risk Assessment Literature

This thesis has made a number of contributions to the suicide risk assessment literature. The systematic reviews included in this thesis exploring risk and protective

factors of suicide (Chapter 3 & 4) were novel in nature, as to the author's best knowledge, no such reviews have been conducted explicitly investigating risk and protective factors that can be feasibly assessed in emergency departments. Furthermore, the respective reviews each identified new findings emerging from the literature which either increase or mediate suicide risk, for example, internet usage or being LGB.

The survey study (Chapter 5), which explored current suicide risk assessment practices in emergency departments, identified variation in suicide risk assessment practices in emergency departments across Scotland which builds on earlier studies that identified similar results (Bennewith et al., 2004; Quinlivan et al., 2014). However, these studies were investigating presentations of self-harm, and did not include the risk assessment of admissions of suicidal ideation alone, which the current thesis did. The qualitative study (Chapter 6), that investigated in further in-depth current suicide risk assessment practices with clinicians was, to the author's best knowledge, the first study of its kind in the UK, and highlighted new and novel findings. For example, clinicians discussed how they assess for patient demeanour in suicide risk assessment, which is under-represented in the suicide risk assessment literature. Furthermore, clinicians discussed an ongoing need for suicide risk assessment training specific to emergency departments.

The triangulation (Chapter 7) of this thesis recommended novel approaches to suicide risk assessment development and training, and included the explicit need for tools to assess for patient demeanour. Furthermore, the thesis discovered the need for suicide risk assessment tools to be developed using a Structured Professional Judgement approach, utilising both actuarial assessment and clinical judgment, as well as fast-and-frugal approaches for feasible use in emergency departments. A final key finding of the

thesis is that emergency department specific suicide risk assessment training should be developed, evaluated and delivered, to improve suicide risk assessment in emergency departments.

8.3. Strength & Limitations

A major strength of the current thesis is that this area is remarkably under-researched, particularly as suicide is a preventable death and a global public health issue. Therefore, updating the literature and providing recommendations for assessment may lead to the development of suicide risk assessment practices that may reduce suicide. A further strength of the study is that, where available, EQUATOR guidelines in reporting were followed, e.g., COREQ and PRISMA. This increased the rigor of the thesis and allows for the research to be replicated at each stage. Given the nationwide geographical spread of the study, it could be suggested that the findings can be generalised to UK settings due to the homogenous nature of suicide risk assessment within emergency departments.

However, the thesis is not without limitations, for example, there may be a risk of bias within the systematic reviews of risk and protective factors as both primary and grey literature were not searched. Only 51 surveys were completed during the quantitative study (Chapter 5), and only six interviews were conducted with clinicians (Chapter 6), although as previously mentioned, given that emergency department clinicians work within similar environments, this may not be methodologically problematic. Furthermore, there was a dearth of results from nurses, as only four nurses completed surveys, and no nursing staff were willing to participate in follow-up interviews. Therefore, future research in this area should directly target nursing staff in order to compare their experiences and perceptions of suicide risk assessment to emergency department doctors

to address any differences which may occur. Moreover, there may be a risk of self-selection bias as the clinicians who participated in the studies, may have only participated due to an interest in suicide risk assessment or psychiatric presentations at the emergency department. Future research could try to guard against this by requiring whole staff groups to participate, though that would carry with it coercion ethical issues. Archival data studies or ethnographic research may be of further use in identifying current practices and processes. A further limitation of the thesis was the lack of service user involvement in the research. As this thesis was clinician focused, service users were not approached during the research, as this would have changed the scope of the thesis as well as the magnitude of the research. Future research involving service users is discussed in the below section (8.4.2). Future findings from service users exploring this topic should be augmented with the findings of the current thesis to improve suicide risk assessment.

8.4. Thesis Developed Recommendations

Chapter 7 triangulated the key findings from within this thesis. The key findings were compared with other findings from within the thesis, and with prior research into suicide risk assessment to develop a theory and evidence-informed suicide risk assessment guidelines. Key recommendations were established from the triangulation, and are outlined below.

8.4.1. Recommendations for Suicide Risk Assessment Development

The triangulation identified recommendations for the future development of suicide risk assessment tools suitable for emergency department settings and included:

- Developing clearer emergency department guidelines to encourage consistency across practice.

- Update suicide risk assessment tools to reflect recent changes in the suicide risk and protective factor literature, for example risk in sexual minority groups.
- To include patient demeanour as a component of risk assessments including interaction and behavioural cues e.g., patients being withdrawn, distraction, confusion, and eye contact, though research is needed in this area prior to writing these into guidelines to avoid potential unconscious bias becoming influential in the assessment.
- To develop suicide risk assessment tools using a Structured Professional Judgement and fast-and-frugal approach.

The triangulation also identified recommendations for the future development of suicide risk assessment training specific to emergency departments and included:

- Training should include known risk and protective factors of suicide, and also newly emerging risk and protective factors including LGB populations and internet usage e.g., individuals being bullied online.
- Patient demeanour should be included as part of a component of suicide risk assessment training and include patient interaction and behavioural cues (e.g., patients being withdrawn, distraction, confusion, and eye contact).
- Training should develop clinical experience by increasing communication and conversational experience with suicidal patients, and improve clinical decision-making skills.

8.4.2. Recommendations for Future Research

By assessing the results and reflections of this thesis, a number of recommendations for future research have been identified. In terms of clinician suicide risk assessment, further research should ascertain important patient demeanour characteristics that can be

assessed in emergency department suicide risk assessments that indicate an increased risk of suicide, as there is a dearth of literature relating to this. Research is also needed into the development of a Structured Professional Judgement suicide risk assessment, which is suitable for use in emergency department settings, for example using fast-and-frugal approaches. Also, an important finding of this thesis was the limited training into both suicide risk assessment and mental health more generally that clinicians receive post-qualification. Therefore, further research should explore the development and evaluation of suicide risk assessment training specific for use in emergency departments.

Finally, upon reflection of this thesis, service user research involvement would have been beneficial and is needed in the development of suicide risk assessment measures, guidelines, and tools. The current thesis was a clinician focused view on suicide risk assessment; however, further research should involve service users and ascertain preferred methods of suicide risk assessment, as well as their feasibility with service users, to ensure that an assessment that is both practical, thorough, and would decrease the likelihood of multiple attempts of suicide and readmission. Furthermore, any development of suicide risk assessment training should involve service users, particularly when developing patient/clinician communication aspects of training. This will not only help to reduce the power imbalance between service users, academics, and clinicians which is present in the literature and in practice, but also potentially help to increase the acceptability and usability of what is developed to service users.

8.5. Closing Summary

This chapter has provided an overview and conclusion of the findings of this thesis, and has also provided a summary of the new knowledge and contribution to the suicide risk assessment evidence base. The thesis identified newly emerging risk and protective

factors of suicide, and identified the need for consistency across emergency departments in suicide risk assessment. Evidence from the thesis also suggests that clinicians are using an adjusted Structured Professional Judgement approach within their assessments, and this should be reflected in the development of future suicide risk assessment tools and training. Emergency department clinicians highlight an ongoing need for further training in suicide risk assessment, particularly for newly qualified staff, who may lack the acquired clinical experience to confidently assess for the risk of suicide. Finally, future research into suicide risk assessment and development, which incorporates the findings of this thesis in emergency department settings is welcomed.

8.6. Thesis Reflections

The current thesis has made a novel contribution to the suicide risk assessment literature, and what is known about clinician suicide risk assessment in emergency department settings. Throughout this thesis, I was able to utilise methods that I had not previously incorporated into my research career, and I was able to improve upon my skills. For example, using a narrative synthesis for systematic reviews, applying for NHS ethics for a nationwide study, deciphering which qualitative analysis approach was most appropriate, and using the ‘following-a-thread’ triangulation methodology. Furthermore, through the publication of parts of this thesis, I have been able to improve upon writing for publication, as well as appropriately addressing reviewer comments and responding to their concerns. The thesis and publications have also allowed me to develop a balance between my ‘academic voice’ and representing the rigour and findings of the research. Pulling out clearly the key messages and contributions is key within academic writing and I believe that this process has allowed me to develop this skill, which will, of course, be ongoing as I continue my career.

The project was an ambitious one, and it could be argued that this led to a less in-depth and rigorous study overall. There may be a risk of this, as discussed in my earlier reflections, and in particular around pressing ahead to complete the research on time and having to decide between pragmatic concerns (e.g., proceeding to the survey before the systematic reviews were complete due to the very lengthy process of gaining NHS ethical permissions nationally) versus taking longer to complete. I ultimately decided, as already discussed, to complete the thesis with a pragmatic head on. There are strengths and weaknesses to doing this, and to have taken on quite so much to do within the thesis itself. However, I believe that despite the limitations, this was an acceptable approach, as each chapter and each study built upon the other, and each of the chapters related and incorporated ideas into one another. Without one study, for example, the overall breadth of knowledge would be lower and the guidelines proposed could have possibly missed out on an important aspect. However, the depth of individual studies may have been greater. This depth versus breadth payoff is something that I expect many academic struggle with, and is something that I expect to come across in my future work. Careful consideration is needed as to which, depth or breadth of data, is most beneficial, and this is something to be considered and which I will consider in future work.

All of the findings from the thesis were able to be amalgamated and triangulated to develop recommendations for guidelines and the development of suicide risk assessment in emergency settings, which would not have been possible without the multiple studies and the mixed-method approach used in this thesis. A thesis of this magnitude not only improved my research skills, but also other skills such as time management, which was heavily required during the thesis. The scale of this thesis has led to the initial development of further research, which will first and foremost include service user collaboration to explore their experiences of current suicide risk assessment. Overall,

conducting the thesis has been an incredibly positive experience, which hopefully will have an impact on improving suicide risk assessment in emergency department.

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Suicide Risk Factors Search Strategy

PsychINFO

05/11/14

1. Suicid* AND risk factor*	93
2. Suicid* AND self-harm*	46
3. Suicid* AND attempt*	96
4. Suicid* AND relative risk	9
5. Suicid* AND attributable risk	1
6. Suicid* AND personality	25
7. Suicid* AND cogniti*	38
8. Suicid* AND risk cu*	5

Total = 303

CINAHL

07/11/14

1. Suicid* AND risk factor*	85
2. Suicid* AND self-harm*	25
3. Suicid* AND attempt*	77
4. Suicid* AND relative risk	28
5. Suicid* AND attributable risk	2
6. Suicid* AND personality	16
7. Suicid* AND cogniti*	21
8. Suicid* AND risk cu*	1

Total = 255

Medline

07/11/14

1. Suicid* AND risk factor*	206
2. Suicid* AND self-harm*	65
3. Suicid* AND attempt*	239
4. Suicid* AND relative risk	419
5. Suicid* AND attributable risk	7
6. Suicid* AND personality	60
7. Suicid* AND cogniti*	60
8. Suicid* AND risk cu*	0

Total = 1056**Overall = 1614**

Quality Appraisal Table

Author, Date, Country	Context (N)	Study Design	Appropriate Methods	Description of Data Extraction	Data Quality	Description of Data Analysis
Anglemyer, A., Horvath, T., & Rutherford, G. (2014). United States	Firearm Accessibility (N = 16)	MA	Yes	Good	Good	Good
Anguiano, L., Mayer, D. K., Piven, M. L., & Rosenstein, D. (2012). United States	Suicide in Cancer Patients (N = 24)	LR	Yes	Appropriate	Poor	Poor
Bagary, M. (2011). United Kingdom	Antiepileptic Drugs (N = Not reported)	LR	No	Poor	Good	Poor
Bahraini, N. H., Simpson, G. K., Brenner, L. A., Hoffberg, A. S., & Schneider, A. L. (2013). United States	Brain Injury patients (N = 16)	SR	Yes	Good	Good	Good
Balhara, Y. P., & Verma, R. (2012). Hong Kong	Schizophrenia (N = Not reported)	LR	Review	Poor	Poor	Poor
Barbui, C., Esposito, E., & Cipriani, A. (2009). Italy	SSRI & Risk of Suicide (N = 8)	SR	Yes	Good	Good	Good
Beghi, M., & Rosenbaum, J. F. (2010). Italy	Risk Factors (N = 76)	SR	Yes	Good	Appropriate	Appropriate

Bell, G. S., Gaitatzis, A., Bell, C. L., Johnson, A. L., & Sander, J. W. (2009). United Kingdom	Epilepsy (<i>N</i> = 74)	MA	Yes	Poor	Good	Good
Berkman, N. D., Lohr, K. N., & Bulik, C. M. (2007). United States	Eating Disorders (<i>N</i> = 62)	SR	No	Poor	Poor	Poor
Bridge, J. A., Iyengar, S., Salary, C. B., Barbe, R. P., Birmaher, B., Pincus, H., et al. (2007). United States	Antidepressant Treatment (<i>N</i> = 27)	MA	Yes	Good	Good	Good
Calabria, B., Degenhardt, L., Hall, W., & Lynskey, M. (2010). Australia	Cannabis Use (<i>N</i> = 19)	SR	Yes	Good	Good	Good
Carroll, R., Metcalfe, C., & Gunnell, D. (2014). United Kingdom	Self-harm (<i>N</i> = 177)	MA	Yes	Good	Good	Good
Catalan, J., Harding, R., Sibley, E., Clucas, C., Croome, N., & Sherr, L. (2011). United Kingdom	HIV (<i>N</i> = 66)	SR	Yes	Good	Poor	Poor
Chapman, S. L. C., & Wu, L. T. (2014). United States	Substance Use Female Veterans (<i>N</i> = 9)	SR	Yes	Poor	Poor	Appropriate

Chen, L. P., Murad, M. H., Paras, M. L., Colbenson, K. M., Sattler, A. L., & Goranson, E. N. (2010). United States	Sexual Abuse (<i>N</i> = 37)	MA	Yes	Good	Good	Good
Cipriani, G., Vedovello, M., Lucetti, C., Di Fiorino, A., & Nuti, A. (2013). Italy	Dementia (<i>N</i> = Not reported)	SR	No	Poor	Poor	Poor
Collier, K. L., van Beusekom, G., Bos, H. M., & Sandfort, T. G. (2013). United States	Sexual Orientation (<i>N</i> = 39)	SR	Yes	Good	Good	Appropriate
Colucci, E., & Martin, G. (2007). Australia	Suicide in Young People (<i>N</i> = 82)	SR	Yes	Appropriate	Poor	Appropriate
Cooper, G. D., Clements, P. T., & Holt, K. E. (2012). United States	Bullying (<i>N</i> = Not reported)	LR	Yes	Appropriate	Appropriate	Appropriate
Crawford, M. J., Kuforiji, B., & Ghosh, P. (2009). United Kingdom	Social Risk Factors (<i>N</i> = 54)	MA	Yes	Good	Appropriate	Good
Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S., & Montgomery, P. (2013). United Kingdom	Internet Use (<i>N</i> = 16)	SR	Yes	Good	Good	Good
Desmyter, S., van Heeringen, C., & Audenaert, K. (2011). Belgium	Neuropsychology (<i>N</i> = Not reported)	SR	No	Poor	Poor	Poor

Devries, K. M., Mak, J. Y., Bacchus, L. J., Child, J. C., Falder, G., Petzold, M., Astbury, J., & Watts, C. H. (2013). United Kingdom	Intimate Partner Violence (<i>N</i> = 16)	MA	Yes	Good	Good	Good
Devries, K. M., Mak, J. Y., Child, J. C., Falder, G., Bacchus, L. J., Astbury, J., & Watts, C. H. (2014). United Kingdom	Childhood Sexual Abuse (<i>N</i> = 9)	MA	Yes	Good	Good	Good
Durkee, T., Hadlaczky, G., Westerlund, M., & Carli, V. (2011). Sweden	Internet (<i>N</i> = Not reported)	SR	Yes	Appropriate	Poor	Poor
Fässberg, M. M., Orden, K. A. V., Duberstein, P., Erlangsen, A., Lapierre, S., Bodner, E., et al. (2012). Sweden	Social Factors in Older Adults (<i>N</i> = 16)	SR	Yes	Poor	Appropriate	Appropriate
Fountoulakis, K. N., Gonda, X., Samara, M., Siapera, M., Karavelas, V., Ristic, D. I., & Iacovides, A. (2012). Greece	Antiepileptic Drugs (<i>N</i> = 5)	SR	Yes	Appropriate	Appropriate	Appropriate
Freire, C., & Koifman, S. (2013). Brasil	Pesticides (<i>N</i> = 22)	SR	Yes	Good	Appropriate	Good
Fry, D., McCoy, A., & Swales, D. (2012). United Kingdom	Child Maltreatment (<i>N</i> = 106)	SR	Yes	Good	Good	Good

Fung, Y. L., & Chan, Z. C. (2011). China	Old Age (<i>N</i> = 22)	SR	Yes	Good	Appropriate	Good
Geulayov, G., Gunnell, D., Holmen, T. L., & Metcalfe, C. (2012). United Kingdom	Children effected by suicide (<i>N</i> = 14)	SR	Yes	Good	Good	Good
Goldfarb, S., Tarver, W. L., & Sen, B. (2013). United States	Family Structure (<i>N</i> = 14)	SR	Yes	Good	Appropriate	Good
Gómez-Durán, E. L., Martin-Fumadó, C., & Hurtado-Ruíz, G. (2012). Spain	Schizophrenia (<i>N</i> = 69)	SR	Yes	Appropriate	Appropriate	Good
Gonda, X., Pompili, M., Serafini, G., Montebovi, F., Campi, S., Dome, P., ... & Rihmer, Z. (2012). Hungary	Bipolar (<i>N</i> = 209)	LR	Yes	Appropriate	Appropriate	Poor
Halfon, N., Labelle, R., Cohen, D., Guilé, J. M., & Breton, J. J. (2013). Canada	Bipolar in Juveniles (<i>N</i> = 16)	SR	Yes	Good	Appropriate	Good
Hannon, G., & Taylor, E. P. (2013). United Kingdom	Young People ASD (<i>N</i> = 4)	SR	Yes	Good	Appropriate	Appropriate
Hatcher, S., & Stubbersfield, O. (2013). Canada	Sense of Belonging (<i>N</i> = 16)	SR	Yes	Appropriate	Poor	Poor
Hauser, M., Galling, B., & Correll, C. U. (2013).	Young people with Bipolar	MA	Yes	Good	Appropriate	Good

United States	(<i>N</i> = 14)					
Hawgood, J., & De Leo, D. (2008). Australia	Anxiety Disorders (<i>N</i> = 41)	SR	Yes	Appropriate	Appropriate	Good
Hawton, K., i Comabella, C. C., Haw, C., & Saunders, K. (2013). United Kingdom	Depression (<i>N</i> = 28)	MA	Yes	Good	Good	Good
Heneghan, H. M., Heinberg, L., Windover, A., Rogula, T., & Schauer, P. R. (2012). United States	Obesity (<i>N</i> = 21)	SR	Yes	Good	Good	Appropriate
Hesdorffer, D. C., Rauch, S. L., & Tamminga, C. A. (2009). United States	Brain Injury (<i>N</i> = 350)	SR	Yes	Poor	Good	Good
Hor, K., & Taylor, M. (2010). United Kingdom	Schizophrenia (<i>N</i> = 51)	SR	Yes	Good	Appropriate	Appropriate
Ide, N., Wyder, M., Kolves, K., & De Leo, D. (2010). Australia	Separation (<i>N</i> = 13)	SR	Yes	Good	Appropriate	Poor
Joe, S., & Niedermeier, D. M. (2008). United States	African Americans (<i>N</i> = 11)	SR	Yes	Appropriate	Appropriate	Appropriate
Jones, D., & Maynard, A. (2013). United Kingdom	Released Prisoners (<i>N</i> = 5)	MA	Yes	Appropriate	Appropriate	Appropriate
Julious, S. A. (2013). United Kingdom	Antidepressants (<i>N</i> = 35)	MA	Yes	Good	Appropriate	Good

Kanwar, A., Malik, S., Prokop, L. J., Sim, L. A., Feldstein, D., Wang, Z., & Murad, M. H. (2013). United States	Anxiety Disorders (<i>N</i> = 42)	MA	Yes	Good	Good	Good
Kawashima, Y., Yonemoto, N., Inagaki, M., & Yamada, M. (2014). Japan	Emergency Departments (<i>N</i> = 70)	MA	Yes	Good	Good	Good
Kenedi, C. A., & Goforth, H. W. (2011). New Zealand	HIV Treatment (<i>N</i> = 54)	SR	Yes	Poor	Appropriate	Poor
Kim, Y. S., & Leventhal, B. (2008). United States	Bullying (<i>N</i> = 37)	SR	Yes	Good	Appropriate	Good
King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). United Kingdom	Self-harm (<i>N</i> = 28)	MA	Yes	Good	Good	Good
Klinitzke, G., Steinig, J., Blüher, M., Kersting, A., & Wagner, B. (2013). Germany	Obesity (<i>N</i> = 15)	SR	Yes	Good	Appropriate	Good
Kölves, K., Kölves, K. E., & De Leo, D. (2013). Australia	Natural Disasters (<i>N</i> = 42)	SR	Yes	Good	Appropriate	Good
Krysinska, K., & Lester, D. (2010). Australia	PTSD (<i>N</i> = 51)	MA	Yes	Appropriate	Appropriate	Good

Kuramoto, S. J., Brent, D. A., & Wilcox, H. C. (2009). United States	Parental Suicide (<i>N</i> = 9)	SR	Yes	Appropriate	Appropriate	Appropriate
Large, M., Sharma, S., Cannon, E., Ryan, C., & Nielssen, O. (2011). Australia	Psychiatric Discharge (<i>N</i> = 13)	MA	Yes	Good	Good	Good
Li, D., Yang, X., Ge, Z., Hao, Y., Wang, Q., Liu, F., et al. (2012). China	Smoking (<i>N</i> = 15)	MA	Yes	Good	Good	Good
Li, Z., Page, A., Martin, G., & Taylor, R. (2011). Australia	Psychiatric & Socio-economic Factors (<i>N</i> = 14)	MA	Yes	Good	Appropriate	Good
Liu, R. T., & Miller, I. (2014). United States	Life Events (<i>N</i> = 95)	SR	Yes	Appropriate	Appropriate	Appropriate
López-Moríñigo, J. D., Ramos-Ríos, R., David, A. S., & Dutta, R. (2012). United Kingdom	Insight in Schizophrenia (<i>N</i> = 15)	SR	Yes	Good	Appropriate	Good
Malik, S., Kanwar, A., Sim, L. A., Prokop, L. J., Wang, Z., Benkhadra, K., & Murad, M. H. (2014). United States	Sleep Disturbances in Psychiatric Diagnosis (<i>N</i> = 19)	MA	Yes	Good	Good	Good
Maniglio, R. (2011). Italy	Child Sexual Abuse (<i>N</i> = 4)	SR	Yes	Good	Good	Good
Marshal, M. P., Dietz, L. J., Friedman, M. S., Stall, R., Smith, H. A.,	Sexual Minority Youth (<i>N</i> = 20)	MA	Yes	Appropriate	Good	Good

McGinley, J., ... & Brent, D. A. (2011). United States						
Marshall, B. D., & Werb, D. (2010). Canada	Methamphetamine Use (<i>N</i> = 47)	SR	Yes	Good	Good	Good
Martin, S. L., Macy, R. J., Sullivan, K., & Magee, M. L. (2007). United States	Intimate Partner Violence (<i>N</i> = 9)	SR	Yes	Good	Good	Good
McLaughlin, J., O'Carroll, R. E., & O'Connor, R. C. (2012). United Kingdom	Intimate Partner Abuse (<i>N</i> = 37)	SR	Yes	Good	Appropriate	Appropriate
Mendez-Bustos, P., de Leon-Martinez, V., Miret, M., Baca-Garcia, E., & Lopez-Castroman, J. (2013). Chile	Suicide Reattempters (<i>N</i> = 86)	SR	Yes	Good	Poor	Appropriate
Miller, A. B., Esposito-Smythers, C., Weismore, J. T., & Renshaw, K. D. (2013). Australia	Child Maltreatment (<i>N</i> = 55)	SR	Yes	Appropriate	Appropriate	Appropriate
Milner, A., Hjelmeland, H., Arensman, E., & De Leo, D. (2013). Australia	Social-Environmental Factors (<i>N</i> = 222)	SR	Yes	Appropriate	Poor	Appropriate
Milner, A., Page, A., & LaMontagne, A. D. (2013). Australia	Unemployment (<i>N</i> = 16)	MA	Yes	Good	Good	Good

Milner, A., Page, A., & Lamontagne, A. D. (2014). Australia	Unemployment (<i>N</i> = 5)	MA	Yes	Good	Good	Good
Milner, A., Spittal, M. J., Pirkis, J., & LaMontagne, A. D. (2013). Australia	Occupation (<i>N</i> = 34)	MA	Yes	Good	Good	Good
Milner, A., Svetlicic, J., & De Leo, D. (2013). Australia	Absence of Mental Disorder (<i>N</i> = 29)	SR	Yes	Good	Appropriate	Good
Morrison, R., & O'Connor, R. C. (2008). United Kingdom	Rumination (<i>N</i> = 11)	SR	Yes	Good	Appropriate	Good
Nielsen, O. B., Malhi, G. S., McGorry, P. D., & Large, M. M. (2012). Australia	Psychosis (<i>N</i> = 20)	SR	Yes	Appropriate	Appropriate	Appropriate
Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). Australia	Child Maltreatment (<i>N</i> = 124)	SR	Yes	Good	Good	Good
Novick, D. M., Swartz, H. A., & Frank, E. (2010). United States	Bipolar (<i>N</i> = 24)	MA	Yes	Good	Appropriate	Good
Nrugham, L., Herrestad, H., & Mehlum, L. (2010).	Norwegian Youth (<i>N</i> = 29)	SR	Yes	Appropriate	Appropriate	Appropriate

Norway						
O'Connor, R. C. (2007). United Kingdom	Perfectionism (<i>N</i> = 29)	SR	Yes	Good	Appropriate	Appropriate
Palmier-Claus, J. E., Taylor, P. J., Varese, F., & Pratt, D. (2012). United Kingdom	Unstable Mood (<i>N</i> = 20)	MA	Yes	Good	Good	Good
Panagioti, M., Gooding, P., & Tarrier, N. (2009). United Kingdom	PTSD (<i>N</i> = 65)	SR	Yes	Good	Appropriate	Good
Panagioti, M., Gooding, P. A., & Tarrier, N. (2012). United Kingdom	PTSD (<i>N</i> = 63)	MA	Yes	Good	Appropriate	Good
Pei, J., Denys, K., Hughes, J., & Rasmussen, C. (2011). Canada	Fetal Alcohol Disorder (<i>N</i> = Not reported)	LR	Yes	Poor	Poor	Poor
Peterhänsel, C., Petroff, D., Klinitzke, G., Kersting, A., & Wagner, B. (2013) Germany	Bariatric Surgery (<i>N</i> = 28)	SR	Yes	Good	Appropriate	Good
Pigeon, W. R., Piquart, M., & Conner, K. (2012). United States	Sleep Disturbance (<i>N</i> = 39)	MA	Yes	Good	Good	Appropriate
Platt, B., Hawton, K., Simkin, S., & Mellanby, R. J. (2010). United Kingdom	Veterinary Surgeons (<i>N</i> = 19)	SR	Yes	Good	Good	Good

Pompili, M., Forte, A., Lester, D., Erbuto, D., Rovedi, F., Innamorati, M., et al. (2014). Italy	Diabetes (<i>N</i> = 20)	SR	Yes	Good	Good	Good
Pompili, M., Forte, A., Palermo, M., Stefani, H., Lamis, D. A., Serafini, G., ... & Girardi, P. (2012). Italy	Multiple Sclerosis (<i>N</i> = 12)	SR	Yes	Good	Good	Good
Pompili, M., Gonda, X., Serafini, G., Innamorati, M., Sher, L., Amore, M., et al. (2013). Italy	Bipolar (<i>N</i> = 34)	SR	Yes	Good	Good	Good
Pompili, M., Lester, D., Forte, A., Seretti, M. E., Erbuto, D., Lamis, D. A., et al. (2014). Italy	Bisexuality (<i>N</i> = 77)	SR	Yes	Good	Good	Appropriate
Pompili, M., Serafini, G., Di Cosimo, D., Dominici, G., Innamorati, M., Lester, D., ... & Martelletti, P. (2010). Italy	Psychiatric Comorbidity (<i>N</i> = Not reported)	SR	Yes	Appropriate	Poor	Poor
Pompili, M., Serafini, G., Innamorati, M., Biondi, M., Siracusano, A., Di Giannantonio, M., et al. (2012). Italy	Substance Abuse (<i>N</i> = 17)	SR	Yes	Good	Good	Good

Pompili, M., Serafini, G., Innamorati, M., Lester, D., Shrivastava, A., Girardi, P., & Nordentoft, M. (2011). Italy	Psychosis (<i>N</i> = 54)	SR	Yes	Good	Appropriate	Good
Pompili, M., Sher, L., Serafini, G., Forte, A., Innamorati, M., Dominici, G., et al. (2013). Italy	PTSD (<i>N</i> = 16)	SR	Yes	Good	Good	Good
Pompili, M., Venturini, P., Montebovi, F., Forte, A., Palermo, M., Lamis, D. A., ... & Girardi, P. (2013). Italy	Dialysis (<i>N</i> = 26)	SR	Yes	Appropriate	Appropriate	Appropriate
Preti, A., Rocchi, M. B. L., Sisti, D., Camboni, M. V., & Miotto, P. (2011). Italy	Eating Disorders (<i>N</i> = 19)	MA	Yes	Good	Appropriate	Good
Rhodes, A. E., Boyle, M. H., Tonmyr, L., Wekerle, C., Goodman, D., Leslie, B., ... & Manion, I. (2011). Canada	Child Sexual Abuse (<i>N</i> = 16)	SR	Yes	Good	Appropriate	Good
Richard-Devantoy, S., Berlim, M. T., & Jollant, F. (2014). Canada	Neuropsychological Markers (<i>N</i> = 25)	MA	Yes	Good	Good	Good
Richard-Devantoy, S., Jollant, F., Kefi, Z., Turecki, G., Olie, J. P.,	Affective Disorders (<i>N</i> = 9)	MA	Yes	Good	Appropriate	Good

Annweiler, C., ... & Le Gall, D. (2012). Canada						
Richard-Devantoy, S., Orsat, M., Dumais, A., Turecki, G., & Jollant, F. (2014). Canada	Neurocognitive Vulnerability (<i>N</i> = 7)	SR	Yes	Good	Appropriate	Good
Richardson, T., Elliott, P., & Roberts, R. (2013). United Kingdom	Debt (<i>N</i> = 65)	MA	Yes	Appropriate	Appropriate	Good
Robson, A., Scrutton, F., Wilkinson, L., & MacLeod, F. (2010). United Kingdom	Cancer Patients (<i>N</i> = 39)	SR	Yes	Appropriate	Appropriate	Appropriate
Saha, S., Chant, D., & McGrath, J. (2007). Australia	Schizophrenia (<i>N</i> = 37)	MA	Yes	Good	Appropriate	Good
Segers, M., & Rawana, J. (2014). Canada	Autism (<i>N</i> = 16)	SR	Yes	Good	Appropriate	Good
Serafini, G., Pompili, M., Innamorati, M., Rihmer, Z., Sher, L., & Girardi, P. (2012). Italy	Cannabis (<i>N</i> = 45)	SR	Yes	Good	Appropriate	Good
Sher, L., & Stanley, B. H. (2008). United States	Endogenous Opioids (<i>N</i> = Not reported)	LR	No	Poor	Poor	Appropriate
Simpson, G., & Tate, R. (2007).	TBI	SR	Yes	Appropriate	Appropriate	Appropriate

Australia	(<i>N</i> = 29)					
Spiegel, B., Schoenfeld, P., & Naliboff, B. (2007). United States	Chronic Illness (<i>N</i> = 8)	SR	Yes	Good	Appropriate	Good
Steele, M. M., & Doey, T. (2007). Canada	Young People (<i>N</i> = Not Reported)	SR	Yes	Appropriate	Appropriate	Appropriate
Troister, T., Links, P. S., & Cutcliffe, J. (2008). Canada	Psychiatric Discharge (<i>N</i> = 28)	SR	Yes	Appropriate	Appropriate	Appropriate
Van Geel, M., Vedder, P., & Tanilon, J. (2014). Netherlands	Bullying (<i>N</i> = 36)	MA	Yes	Good	Good	Good
Voracek, M. (2007). Austria	Genetics (<i>N</i> = 3)	LR	No	Appropriate	Appropriate	Appropriate
Voracek, M., & Loibl, L. M. (2007). Austria	Genetics (<i>N</i> = 32)	SR	Yes	Appropriate	Appropriate	Appropriate
Watkins, H. B., & Meyer, T. D. (2013). United Kindgom	Impulsivity (<i>N</i> = 16)	SR	Yes	Good	Appropriate	Good
Weich, S., Patterson, J., Shaw, R., & Stewart-Brown, S. (2009). United Kingdom	Family Relationships (<i>N</i> = 23)	SR	Yes	Good	Good	Good
Yoshimasu, K., Kiyohara, C., Miyashita, K., & Stress Research	Risk Factors (<i>N</i> = 24)	MA	Yes	Good	Good	Good

Group of the Japanese Society for Hygiene. (2008). Japan						
Zhang, J., Yan, F., Li, Y., & McKeown, R. E. (2013). United States	Body Mass Index (<i>N</i> = Not reported)	SR	Yes	Good	Appropriate	Good

Note. MA = Meta-analysis, SR = Systematic Review, LR = Literature Review.

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Key Findings of Included Studies

Study, Location	Study Description			Review Type	Outcome Measures	Main Findings	Limitations
	Context	N studies	Demographics				
Anglemyer, A., Horvath, T., & Rutherford, G. (2014). United States	Firearm Accessibility	16 studies, 14 assessed suicide	Age: Adolescent & Adult Gender: Male 75% Ethnicity: white 78-98%	Systematic Review and Meta-Analysis	Completed Suicides	13 out of 14 of the studies of suicide found significantly higher odds of suicide among participants who had firearm access than among those who did not, with <i>ORs</i> ranging from 1.38-10.38. Meta-analysis calculated pooled <i>OR</i> of 3.24 (strong) of gun in home and odds of suicide. No significant interaction between subgroups for suicide (sex; age (adolescent or adult); year of publication; location of death; and risk of bias).	Substantial heterogeneity ($I^2 = 89\%$; $\tau = 0.45$). 3 case control studies had potential selection bias. 5 suicide studies had potential comparability bias resulting from lack of adequate adjustment for major cofounders. 11 of 14 suicide studies had potential exposure bias due to unblended interviews of proxies of case patients and control participants.
Bahraini, N. H., Simpson, G. K., Brenner, L. A., Hoffberg, A. S., & Schneider, A. L. (2013). United States	Traumatic Brain Injury (TBI) survivors	16 studies	Age: Adults Gender: not reported. Ethnicity: not reported.	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts	<i>Death by Suicide in TBI:</i> Three of the studies supported an increased risk. Two studies did not. <i>Suicide Attempts with TBI:</i> Two studies found between 7-27.3% of veterans attempted suicide after TBI. Overall, findings from the review support an increased risk of suicide among TBI survivors.	13 out of 16 of the studies had moderate to high risk of bias.
Barbui, C., Esposito, E., & Cipriani, A. (2009). Italy	Depressed Individuals using SSRIs	8 studies, 200,000+ patients	Age: Adolescents; Adults; Elderly (reported separately)	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts	SSRIs significantly increase risk of completed or attempted suicide in adolescents <i>OR</i> 1.92 (CI 95%, 1.51 to 2.44). Adults: SSRI significantly decreased the risk of completed or attempted suicide.	In adolescents, SSRIs are limited to severe cases, thus excess risk may be explained by confounding by severity.

			Gender: not reported Ethnicity: not reported			Elderly: SSRIs had significant protective effect. In adolescents, exposure to paroxetine (<i>OR</i> 1.77, 95% CI 1.05-2.99) and venlafaxine (<i>OR</i> 2.43, 95% CI 1.47-4.02) was significantly associated with increased risk of completed or attempted suicide.	Not all studies gave information about specific drugs – which may have had an effect.
Bridge, J. A., Iyengar, S., Salary, C. B., Barbe, R. P., Birmaher, B., Pincus, H., et al. (2007). United States	Children & Adolescents with major depressive disorder, OCD, & non-OCD anxiety disorders taking second generation anti-depressants	27 studies, 5310 patients	Age: < 19yrs Gender: not reported Ethnicity: not reported	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts; Suicidal Ideation	Pooled absolute rates of suicidal ideation/attempt in major depressive disorder were 3% (95% CI, 2% to 4%) in antidepressant treated participants and 2% (95% CI, 1% to 2%) in those receiving placebo. The pooled risk difference was 1% (95% CI, -0.1% to 2%, <i>p</i> = 0.08). Pooled absolute rates of suicidal ideation/attempt with obsessive compulsive disorder (OCD) were 1% (95% CI, 0% to 2%) in SSRI-treated participants and 0.3% (95% CI, -0.3% to 1%) in those receiving placebo, and the pooled risk difference was 0.5% (95% CI, -1% to 2%, <i>p</i> = 0.57). Pooled absolute rates of suicidal ideation/attempt in non-OCD anxiety disorders were 1% (95% CI, 0.2% to 2%) in antidepressant treated participants and 0.2% (95% CI, -0.2% to 0.5%) in those receiving placebo, and the pooled risk difference was 0.7% (95% CI, -0.4% to 2%, <i>p</i> = 0.21). Results found an increased risk difference of suicidal ideation/attempts across all trials for drug vs placebo, in all trials e.g. MDD, OCD & non-OCD anxiety disorders. The pooled risk differences were not significant. There were no completed suicides	No meta-analysis, few trials for quantity of data.

Calabria, B., Degenhardt, L., Hall, W., & Lynskey, M. (2010). Australia	Cannabis use and risk of suicide	4 studies	Age: Adolescent & Adult Gender: M & F Ethnicity: New Zealand, United States, Australia	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts; Suicidal Ideation	3 out of 4 studies found that an increased risk of either suicide, suicide attempt, and suicidal ideation was significantly associated with cannabis use. One study found that cannabis use was not a risk factor for suicide attempt.	3 studies did not control for confounding variables related to suicide, e.g. depression, alcohol use etc. Too few studies, the evidence is as yet unclear as to whether regular cannabis use increases the risk of suicide.
Carroll, R., Metcalfe, C., & Gunnell, D. (2014). United Kingdom	Self-harm & risk of fatal repetition	177 studies	Age: 10-99 Gender: Male (40%) Ethnicity: 78.5% EU, & Rest of World (none from Africa)	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts	Pooled incidence rate of subsequent fatal self-harm was 1.6% at 1 year; 2.1% at 2 years; 3.9% at 5 years; & 4.2% at 10 years. Cohorts with average age above the median (34years) had an estimated fatal repetition of 2.4% compared to 1.1% below the median. Males 2.7% estimate after 1 year; females 1.2%. Cohorts above median of self-poisoning had a 1 year fatal repetition rate of 1.1%, compared to 2% in those with less self-poisoning. Findings suggest risk of suicide well after a self-harm episode. 1 in 25 patients presenting with self-harm in hospital will kill themselves in the next 5 years.	Makes no differentiation between self-harm and suicide attempts. Does not account for risk when people do not present to hospital.
Chen, L. P., Murad, M. H., Paras, M. L., Colbenson, K. M., Sattler, A. L., Goranson, E. N., et al. (2010). United States	Sexual Abuse & Suicide attempts	37 studies, 19 suicide attempts	Age: Child and adult Gender: M & F Ethnicity: White, Native American	Systematic Review and Meta-Analysis	Suicide Attempts	Significant association found between a history of sexual abuse and suicide attempts (<i>OR</i> 4.14; 95% <i>CI</i> 2.98-5.76).	Only 6 of the 37 studies fulfilled more than half of the Newcastle-Ottawa criteria for study quality. Some self-reporting in case-control studies of sexual abuse. No differentiation between childhood and adult abuse and attempts.

							Marked heterogeneity ($I^2 > 50\%$) was present in the analyses of suicide attempts.
Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S., & Montgomery, P. (2013) United Kingdom	Internet Use and Self-Harm/Suicide	16 studies	Age: Under 25 Gender: Not reported Ethnicity: Not reported	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	18% stated that finding a suicidal partner had relevance to them. Discussion forum use was significantly associated with increases in suicidal ideation. General internet use appears to be a source of exposure to suicide, with 59% ($N = 429$) of participants in one study saying they had learned about suicide from an online source. Suicidal ideation was significantly associated with searching online for information about suicide. Moderate or severe levels of addiction to the internet were related to increased suicidal ideation. Cyber-bullying appeared to increase rates of attempted suicide for both victims and perps, with rates increasing 1.9 and 1.5 times respectively.	Small number of papers. Lots of single study results, cannot be generalized. No clear outcome measures.
Devries, K. M., Mak, J. Y., Bacchus, L. J., Child, J. C., Falder, G., Petzold, M., Astbury, J., & Watts, C. H. (2013). United Kingdom	Intimate Partner Violence	16 studies, 3 studies of suicide	Age: Adolescent and Adults Gender: M & F Ethnicity: USA, Australia, Sweden, South Africa, Nicaragua, India	Systematic Review and Meta-Analysis	Suicide Attempts	All three studies showed positive relationships (2 were significant, 1 was borderline significance) of IPV & suicide attempts in women. ($ORs = 3.2$, 95% CI, 0.97-103.59; $OR = 7.97$, 95% CI, 1.75-36.37; $Beta = 0.12$, 95% CI, 0.02-0.22). Two studies looked at men, no-significant relationships (both these studies included adolescent or young adult men).	Too few studies met inclusion criteria to meaningfully assess bias.
Devries, K. M., Mak, J. Y., Child, J. C., Falder, G., Bacchus,	Childhood Sexual Abuse	9 studies 8733 participants	Age: 0-18 (of CSA). Gender: M&F	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts	Overall pooled estimate for all studies found an OR of 2.43 (95% CI 1.94-3.05), ($p < 0.001$). No significant difference between men and women.	Lack of control for baseline suicidal behaviours. Other mental disorders not well controlled for.

L. J., Astbury, J., & Watts, C. H. (2014). United Kingdom			Ethnicity: USA, Canada, New Zealand, Australia, Switzerland & Netherlands			All estimates were in direction of increased risk of suicide, except one.	
Fry, D., McCoy, A., & Swales, D. (2012). United Kingdom	Child Maltreatment (Data from East Asia and Pacific)	106 studies	Age: Child – Adult Gender: M & F Ethnicity: China, Japan, Korea, Mongolia, Thailand, Myanmar, Pacific Islands, Philippines, Viet Nam	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	16 studies explored suicide. 11 looked at suicidal ideation, and 5 looked at attempts. Children who have been maltreated in the region are at an increased risk of suicide ideation and attempts with those that have experienced sexual or physical abuse having a median fourfold increased risk. <i>Suicidal Ideation:</i> All 11 studies found a significantly increased risk of ideation associated with maltreatment. <i>ORs</i> and <i>aORs</i> ranged from 1.06 – 8.52. <i>Suicide Attempts:</i> In all 5 studies, maltreatment was found to significantly increase risk of suicide. <i>ORs</i> and <i>aORs</i> ranged from 2.98 – 8.47. Both results for ideation and attempts included maltreatment of physical, emotional and sexual abuse.	Great diversity in the ethnic groups. Differences in measurement of ideation and attempts between studies. Only some of the studies adjusted for e.g. gender, type of abuse etc.
Geulayov, G., Gunnell, D., Holmen, T. L., & Metcalfe, C. (2012). United Kingdom	Parental Suicide & Offspring Suicide	14 studies	Age: Birth-36 Gender: M & F Ethnicity: USA, Denmark, Sweden, Norway, Finland, Germany	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts	Compared with offspring of two living parents, children who lost a parent to suicide were at greater risk of dying by suicide (<i>aOR</i> 1.94, 95% CI 1.54-2.45); and attempting (<i>aOR</i> 1.95, CI 95% 1.48-2.57). Compared with offspring who lost a parents to a cause other than suicide, offspring of suicide descendants were at a higher risk of suicide (<i>OR</i> =	Considerable heterogeneity in study methodology.

						<p>1.91, CI 1.56-2.10); and suicide attempt ($OR = 1.73$, CI 1.63-1.83).</p> <p>Offspring whose parents attempted suicide were also more likely to die by suicide ($OR = 3.40$, CI 2.82-4.10), and attempt suicide ($OR = 3.74$, CI 3.54-3.95) compared with offspring not exposed to parental suicide attempt.</p> <p>Evidence for maternal vs paternal suicidal behaviour and parental suicidal behaviour on male vs females offspring is mixed.</p>	
<p>Hawton, K., & Goldacre, M. (1982). Suicide in depression. <i>British Journal of Psychiatry</i>, 140, 1-11.</p> <p>Comabella, C. C., Haw, C., & Saunders, K. (2013). United Kingdom</p>	<p>Suicide in depression</p>	<p>19 studies</p>	<p>Age:</p> <p>Gender: Male & female</p> <p>Ethnicity: USA, Canada, Australia, Switzerland, Denmark, Germany, & UK</p>	<p>Systematic Review and Meta-Analysis</p>	<p>Completed Suicides</p>	<p><i>Sociodemographic Factors:</i> Suicide risk was significantly greater in males ($OR = 1.76$, CI, 1.08-2.86). Not associated with: marital status, living alone, having children, employment status.</p> <p><i>Family & Personal Psychiatric History:</i> Suicide risk increased with family history of mental disorder ($OR = 1.41$, CI 1.0-1.97). History of attempts or self-harm was strongly associated with increased suicide risk ($OR = 4.84$, CI, 3.26-7.20).</p> <p><i>Characteristics of depression:</i> More severe depressive psychopathology is associated with risk ($OR = 2.20$, CI 1.05-4.60). Risk increased where individuals had feelings of hopelessness ($OR = 2.20$, CI 1.49-3.23).</p> <p><i>Comorbid Disorder & Behaviour:</i> Suicide risk increased in presence of current substance misuse ($OR = 2.17$, CI 1.77-2.66). Alcohol ($OR = 2.47$, CI 1.40-4.36) or drug ($OR = 2.66$, CI 1.37-5.20). Anxiety increased suicide risk ($OR = 1.59$, CI. 1.03-2.45). Suicide risk strongly associated with presence of</p>	<p>All studies, except 2, were conducted in patients in psychiatric care.</p> <p>No studies examined risk factors in primary care populations</p>

						Axis II (personality) disorder (<i>OR</i> = 4.95, CI 1.99-12.33).	
Kanwar, A., Malik, S., Prokop, L. J., Sim, L. A., Feldstein, D., Wang, Z., & Murad, M. H. (2013). United States	Anxiety Disorders	42 studies, 309,974 patients	Age: 4-90 Gender: M&F Ethnicity: North America, Europe and a few in Australia, New Zealand, South America and Asia.	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts; Suicidal Ideation	Compared to those without anxiety, patients with anxiety were more likely to have suicidal ideations (<i>OR</i> = 2.89, CI 2.09-4.00), attempted suicides (<i>OR</i> = 2.47, CI 1.96-3.10), completed suicides (<i>OR</i> = 3.34, CI 2.13-5.25), or any suicidal activities (<i>OR</i> = 2.85, CI 2.35, 3.46). The increase in risk was demonstrated for each subtype of anxiety (Generalized Anxiety Disorder, Panic Disorder, & PTSD) except for OCD. Studies with children found associations of anxiety disorders with suicidal ideation (<i>OR</i> = 3.08, CI 1.94-4.90), and any suicidal activities (<i>OR</i> = 2.82, CI 1.92-4.14)	Egger regression asymmetry tests ($p < 0.05$) and funnel plots of outcomes suggested potential publication bias. Substantial heterogeneity was observed in most of the pooled outcomes ($I^2 > 50\%$). Unable to get data on what medication patients were taking, e.g. SSRI (which have been associated with suicidal behaviour).
King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). United Kingdom	Suicide Lesbian, Gay and Bisexual people	28 studies, 214,344 heterosexual, 11,971 non-heterosexual	Age: 12 and over Gender: M & F Ethnicity: North America, Europe & Australasia	Systematic Review and Meta-Analysis	Suicide Attempts; Suicidal Ideation	Lifetime suicide attempts was found to be increased in all groups (LGB) compared to heterosexuals. Risk ranged from 0.03-0.25 and was higher in men than women. Women demonstrated 1.82 times increased risk of lifetime suicide attempts in lesbians compared to bisexuals. RR for 12 month prevalence of suicide attempts ranged from 1.96 to 2.76 for both males and females. Lifetime prevalence of suicidal ideation RR = 2.04 (M&F) (Women = 1.75-2.10, Men = 2.0-4.10). 12 month prevalence of suicidal ideation in both sexes was RR 1.71.	Substantial heterogeneity when data were combined for both sexes and for men. Quality of studies limited. Some studies had lower than expected prevalence of LGB people in population surveys (unrepresentative sample). Number of studies in MA was small.

Large, M., Sharma, S., Cannon, E., Ryan, C., & Nielssen, O. (2011). Australia	Within 1 year of psychiatric hospital discharge	13 studies, with 1544 reported suicides	Age: Does not state. Gender: M & F Ethnicity: USA, UK, China, Switzerland	Systematic Review and Meta-Analysis	Completed Suicides	History of self-harm or a suicide attempt (<i>OR</i> = 3.15) and depressive symptoms (<i>OR</i> = 2.70) were moderately associated with post-discharge suicide. Being male (<i>OR</i> = 1.58); recent social difficulties (<i>OR</i> = 2.23); a diagnosis of major depressive disorder (<i>OR</i> = 1.91); the presence of suicidal ideas (<i>OR</i> = 2.47); and an unplanned discharge (<i>OR</i> = 2.44) were weakly associated.	Data based on observations in routine clinical care. Some patients may have been incorrectly identified as high risk individuals. Lack of published studies that compared patients who suicided within a year with similar discharged controls.
Li, D., Yang, X., Ge, Z., Hao, Y., Wang, Q., Liu, F., et al. (2012). China	Cigarette Smoking	15 studies, involving 2395 cases among 1,369,807 participants	Age: 14-75 Gender: 7 studies M&F, 6 studies only M Ethnicity: US, Finland, Sweden, Norway, Germany, Japan, China	Systematic Review and Meta-Analysis	Completed Suicides	RR on completed suicide for former smokers compared with never smokers was 1.28 (95% CI; 1.001-1.641). RR for current smokers compared with never was 1.81. For current smokers, all studies showed that current smoking was associated with increased risk of completed suicide. RR gender with smoking and suicide was M = 1.70 (95% CI 1.36-2.12) and F = 1.83 (95% CI 1.24-2.67). The association between smoking and completed suicide was weaker for the 7 studies adjusting for alcohol consumption. An increment of 10 cigarettes per day was significantly associated with a 24% increased risk of suicidal death for current smokers (RR = 1.23, 95% CI 1.18-1.27). Compared with never smokers, current smokers have an 81% increase in the risk of completed suicide.	Statistically significant heterogeneity among studies of current smoking (but not former smoking). Lack of uniformity in former smoking. Self-administered questionnaire of smoking habits.
Malik, S., Kanwar, A., Sim, L. A., Prokop, L. J., Wang,	Sleep Disturbances	19 studies, 104,436 patients included	Age: 17-79 Gender: 58% F	Systematic Review and	Completed Suicides; Suicide	Compared to those without sleep disturbances, patients with psychiatric diagnosis and co-morbid	Observational studies with high risk of bias.

Z., Benkhadra, K., & Murad, M. H. (2014). United States			Ethnicity: Does not state.	Meta-Analysis	Attempts; Suicidal Ideation	sleep disturbances were more likely to report suicidal behaviours (<i>OR</i> 1.99, 95% CI 1.72-2.30). There were strong association between suicidal behaviours and sleep disturbance in depression (<i>OR</i> 3.05, 95% CI 2.07-4.48), PTSD (<i>OR</i> 2.56, 95% CI 1.91-3.43), panic disorders (<i>OR</i> 3.22, 95% CI 1.09-9.45), and schizophrenia (<i>OR</i> 12.66, 95% CI 1.40-114.44). Subgroup analyses found that parasomnia had the greatest increased risk of suicidal behaviours (<i>OR</i> 4.69, 95% CI 2.58-8.51), and the lowest risk group was sleep-related breathing disorder (<i>OR</i> 2.56, 95% CI 1.91-3.43).	Publication bias may have also effected result.
Maniglio, R. (2011). Italy	Child Sexual Abuse	4 studies	Age: Young-Adult Gender: M & F Ethnicity: Not stated.	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	Across methodologies, samples, and measures, there is a statistically significant association between child sexual abuse and suicidal and non-suicidal self-injurious behaviour or ideation. The magnitude of the relationship between child sexual abuse and suicide and non-suicidal self-injury ranges from small to medium.	Studies have the absence of appropriate comparison groups and measurement of abuse histories and outcomes. Does not account for other factors e.g. social factors, biological etc.
Marshall, B. D., & Werb, D. (2010). Canada	Methamphetamine use among young people	47 studies	Age: < 25 Gender: M & F Ethnicity: North America, Thailand, Australia, South Africa, China, Argentina, United Kingdom	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	Six studies explored ideation and attempts among methamphetamine users. Five showed links between either completed suicide, ideation or attempts. One study found that frequency of methamphetamine use was not associated with ideation. Students who reported ever using methamphetamine were more likely to report attempting suicide. Suicide attempts were more common among those diagnosed with methamphetamine-induced psychosis.	No gray literature search. Measurement bias e.g. self-reported measures of drug use.

						A 5-year review observed a high prevalence of methamphetamine (9%) in toxicological samples of suicides.	
Milner, A., Page, A., & LaMontagne, A. D. (2013). Australia	Long-term Unemployment	16 studies	Age: 16-78 Gender: M&F Ethnicity: Denmark, USA, Sweden, New Zealand, Finland	Systematic Review and Meta-Analysis	Completed Suicides; Suicide Attempts	Overall pooled RR of suicide in long term unemployed (follow-up average 7.8years) compared to those currently employed was 1.70 (95% CI, 1.22-2.18). Pooled RR in studies with follow up less than 5 years was 2.50 (95% CI, 1.83-3.17) compared to those currently employed. RR in studies with follow up periods between 12 and 16 years was 1.21 (95% CI, 1.10-1.33) compared with those currently employed.	High degree of heterogeneity between studies. May have publication bias. Measurement of employment.
Milner, A., Page, A., & Lamontagne, A. D. (2014). Australia	Unemployment	5 studies	Age: Not stated. Gender: M & F Ethnicity: Denmark, Sweden	Systematic Review and Meta-Analysis	Completed Suicides	The effect of unemployment was associated with a 1.41 RR of suicide (95% CI, 1.21-1.60). Unemployment (compared with employment) was associated with a significantly higher RR of suicide before adjustment (RR 1.58, 95% CI 1.33-1.83). After controlling for prior mental health problems, the RR of suicide following unemployment was reduced, but remained statistically significant (RR 1.15, 95% CI 1.00-1.30).	Small number of studies included in review (lacks generalizability).
Milner, A., Spittal, M. J., Pirkis, J., & LaMontagne, A. D. (2013). Australia	Occupation	34 studies	Age: Working Age Gender: M&F Ethnicity: North America, Europe, 1 study each in Japan, Korea, New	Systematic Review and Meta-Analysis	Completed Suicides	The highest risk of suicide was apparent in the International Standard Classification of Occupations (ISCO) major category 9, which was comprised of 'elementary' occupations (RR = 1.84, 95% CI 1.46-2.33) and the major category 8 group (RR = 1.78, 95% CI 1.22-2.60). There was also a particularly elevated risk among the ISCO major category 5 (RR = 1.52, 95% CI 1.28-	There was notable heterogeneity in sample size of each of the ISCO categories. There were also notable differences in the number of studies included in each subgroup analysis.

			Zealand and Australia.			1.80), and ISCO major category 6 (RR = 1.64, 95% CI 1.19-2.28). The lowest risk of suicide was seen in the highest skill-level group of managers (ISCO category 1, RR = 0.68, 95% CI 0.50-0.93) and clerical support workers (ISCO category 4, RR = 0.77, 95% CI 0.64-0.92). Results of this meta-analysis also indicated significant differences by skill level, with the lowest and the second lowest skilled professions being at particularly elevated risk.	Classification errors in employment could have taken place.
Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). Australia	Child Abuse	124 studies	Age: Not Stated. Gender: M& F Ethnicity: Western EU, North America, Australia, New Zealand	Systematic Review and Meta-Analysis	Suicide Attempts; Suicidal Ideation	Physically abused (<i>OR</i> = 3.00; 95% CI 2.07–4.33), emotionally abused (<i>OR</i> = 3.08; 95% CI 2.42–3.93), and neglected (<i>OR</i> = 1.85; 95% CI 1.25–2.73) individuals had a significantly increased risk of suicidal behaviour compared with non-abused individuals. There was an increased risk of suicide attempts (physical abuse (<i>OR</i> = 3.40; 95% CI 2.17–5.32)), emotional abuse (<i>OR</i> = 3.37; 95% CI 2.44–4.67), and neglect (<i>OR</i> = 1.95; 95% CI 1.13–3.37).	Publication bias (non-significant findings less likely to be published). Measurement of child abuse across studies.
Palmier-Claus, J. E., Taylor, P. J., Varese, F., & Pratt, D. (2012). United Kingdom	Unstable Mood	20 studies	Age: Not reported. Gender: Not reported. Ethnicity: Not reported.	Systematic Review, Narrative Synthesis and Meta-Analysis	Completed Suicides; Suicide Attempts	There was a statistically significant association between mood instability and suicide, with a summary effect size of $Z = 0.35$, (CI 0.26-0.44) $p < 0.001$ (moderate-to-large association)	Significant results using Egger's test and examination of the funnel plot indicated that the results of the research synthesis are likely to be influenced by publication bias.
Platt, B., Hawton, K., Simkin, S., & Mellanby, R. J. (2010).	Veterinarian Surgeon Suicide	19 studies	Age: Not reported. Gender: M & F Ethnicity: USA, Australia, UK,	Systematic Review and Narrative Synthesis	Completed Suicides	11 studies found that the proportion of veterinary deaths that were suicides were significantly elevated compared with the proportion in the general population, 7 of these were significant ($p < 0.05$).	Inconsistencies in verdict of suicide.

United Kingdom			Belgium, Norway, Denmark			Veterinary surgeons in the UK are at least three times as likely to die from suicide as members of the general population and that risk is also elevated in some other countries.	
Pompili, M., Gonda, X., Serafini, G., Innamorati, M., Sher, L., Amore, M., et al. (2013). Italy	Bipolar Disorder	34 studies	Age: > 18 Gender: M & F Ethnicity: Not reported.	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts; Suicidal Ideation	Based on the main findings of the present review, the risk of suicide among BD subjects was up to 20-30 times greater than that for the general population.	No meta-analysis. Studies used different measurement and outcomes. Small sample sizes and small number of suicides in some studies.
Pompili, M., Lester, D., Forte, A., Seretti, M. E., Erbuto, D., Lamis, D. A., et al. (2014). Italy	Bisexuality	19 studies	Age: Children-Older Age Gender: M & F Ethnicity: American, Australian	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	13 of 15 studies, bisexuals were more likely than heterosexuals to report prior suicidal behavior (suicidal ideation or attempted suicide), 2 studies reported no significant differences. Results less clear when bisexuals were compared to homosexuals. 11 studies found no differences in suicidal behaviour between bisexuals and homosexuals, 5 studies found that bisexuals reported more suicidal behaviour. 1 study found that they reported less suicidal behaviour, and 2 studies reported inconsistent results.	No MA due to data not permitting this. Lack of longitudinal studies. Small number of bisexual studies (compared with the number of gay & lesbian studies).
Pompili, M., Serafini, G., Innamorati, M., Biondi, M., Siracusano, A., Di Giannantonio, M., et al. (2012). Italy	Substance Abuse in Adolescents	17 studies	Age: Adolescents Gender: M & F Ethnicity: Not reported.	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts; Suicidal Ideation	<i>Suicide risk in alcohol users/abusers:</i> Some studies showed an association between alcohol use disorders and suicidal risk. Alcohol misuse was significantly associated with, suicidal attitudes and the Drug Abuse Screening Test was a positive predictor of suicide risk. Early alcohol use onset was significantly associated with suicidality across gender.	Cause and effect. Different types of drugs used over time. Lower quality papers (although reported as limitation).

						<p><i>Suicide risk in other substance users/abusers:</i> Several studies showed an association between substance use disorders and suicidal risk.</p> <p><i>Prevalence rates of substance use/abuse among adolescent suicide attempters:</i> Several research studies have indicated that suicide attempts are common in adolescents with substance use disorders and that substance use is common in those seeking treatment for suicidal behaviour.</p>	
Pompili, M., Sher, L., Serafini, G., Forte, A., Innamorati, M., Dominici, G., et al. (2013). Italy	PTSD in veterans	18 studies	Age: Adult Gender: M&F Ethnicity: Not reported.	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts; Suicidal Ideation	<p><i>Suicidal Behaviour Many Years After Deployment:</i> Researchers have reported that military personnel may be at higher risk for suicide for many years after their return home.</p> <p><i>Combat Exposure and Injuries as a Risk Factor of PTSD and Suicidal Behaviour:</i> Exposure to Agent Orange has been found in Vietnam veterans to be related to organic psychological deficits and a higher rate of PTSD, depression (including suicidal thoughts), anxiety, and aggression. Also, exposure to violent episodes of war may be considered as a risk factor for different mental disorders and also suicide attempts.</p>	<p>No meta-analysis.</p> <p>Some studies did not have adequate follow-ups.</p>
Pompili, M., Forte, A., Lester, D., Erbuto, D., Rovedi, F., Innamorati, M., et al. (2014). Italy	Diabetes Mellitus type 1 (DM-1)	20 studies	Age: Child - Adult Gender: M & F Ethnicity: Not reported.	Systematic Review and Narrative Synthesis	Completed Suicides; Suicide Attempts; Suicidal Ideation	<p>In general, patients with DM-1 have a higher risk for suicide than the general population.</p> <p><i>Adults: Completed suicide:</i> Most of the studies found an increase in mortality from suicide.</p> <p><i>Adults: non-fatal suicidal behaviour:</i> Two studies found higher suicidal behaviour in DM-1 compared to type 2. Another study found that suicidal behaviour prevalence was higher than controls.</p>	<p>No meta-analysis.</p> <p>Methodological implications such as, small sample sizes, unspecified follow-up periods, mixed age groups etc.</p>

						<p><i>Adolescent Suicidal Behaviours:</i> One study found no excess of deaths related to suicide. Remaining four studies found mixed results.</p> <p><i>Children Suicidal Behaviours:</i> 2/3 studies had a higher than expected rate of suicides or suicidal behaviours. One study found only boys dying from suicide.</p>	
Richard-Devantoy, S., Berlim, M. T., & Jollant, F. (2014). Canada	Neuropsychological markers of vulnerability to suicidal behavior in mood disorders	25 studies	<p>Age: All</p> <p>Gender: M & F</p> <p>Ethnicity: Not Stated</p>	Systematic Review and Meta-Analysis	Suicide Attempts	<p><i>Suicide Attempters vs Healthy Controls:</i> Suicide attempters had significantly lower performance on 7 neuropsychological tests compared to healthy controls, all with moderate to high effect sizes.</p> <p><i>Suicide Attempters vs Patient Controls:</i> Suicide attempters had significantly lower IGT net scores and Animals scores, and lower Stroop performance than patient controls, all with moderate effect sizes.</p> <p>Performance on some neuropsychological tests are poor in patients with histories of suicidal acts in comparison with patients with mood disorders but no suicidal history.</p>	<p>Different populations e.g., elderly, middle aged, unipolar, bipolar etc.</p> <p>Some participants were on medication, some were not.</p>
Van Geel, M., Vedder, P., & Tanilon, J. (2014). Netherlands	Bullying & Cyberbullying	34 studies of suicidal ideation, 9 studies of suicide attempts	<p>Age: 9-21</p> <p>Gender: M & F</p> <p>Ethnicity: Worldwide</p>	Systematic Review and Meta-Analysis	Suicide Attempts; Suicidal Ideation	<p><i>Suicidal Ideation:</i> There was a significant relationship between peer victimization and suicidal ideation ($OR = 2.23$, 95% CI, 2.10-2.37). Cyberbullying was more strongly related to suicidal ideation ($OR = 3.12$, 95% CI, 2.40-4.05) than was traditional bullying (2.16 [2.05-2.28]); this difference in effect sizes was significant ($Q_1 = 7.71$; $p = 0.02$).</p> <p><i>Suicide Attempts:</i> There was a significant relationship between peer victimization and suicide attempts ($OR = 2.55$, 95% CI, 1.95 -3.34).</p>	<p>Small number of studies. Analyses on sex, age groups, victims and bully-victims, or cyberbullying for suicide attempts were not performed. Differences in recording of suicidal ideation.</p>

Weich, S., Patterson, J., Shaw, R., & Stewart-Brown, S. (2009). United Kingdom	Family Relationships in Childhood	23 studies, 5 studies of suicide	Age: 6+ Gender: M & F Ethnicity: Not reported.	Systematic Review and Narrative Synthesis	Suicide Attempts; Suicidal Ideation	One study found that both physical abuse and maternal psychological unavailability before age of 5 predicted attempted suicide by the age of 16. Another study also found that maternal psychological unavailability (before age 3) was associated with suicide attempts and ideas. Two studies found an association between low scores on self-reported closeness-to-parents in late adolescence and either hospitalisation for suicide over the next 20–30 years.	Of the 5 studies, only 3 were rated as high quality. Potential publication bias.
Yoshimasu, K., Kiyohara, C., Miyashita, K., & Stress Research Group of the Japanese Society for Hygiene. (2008). Japan	Suicide Risk Factors	24 studies	Age: Adolescent - Adult Gender: M & F Ethnicity: Not Reported	Systematic Review and Meta-Analysis	Completed Suicides	Substance-related disorders (<i>OR</i> 5.24, 95% CI 3.30–8.31) and mood disorders (<i>OR</i> 13.42, 95% CI 8.05–22.37) were strongly associated with suicidal risk. Suicidal attempt and deliberate self-harm, have been shown to be very strongly associated with suicidal risk (<i>OR</i> 16.33, 95% CI 7.51–35.52).	Cultural differences with regards to suicide globally. Interactions of risk factors were not adjusted for e.g. alcohol and depression.

Note. *OR* = Odds Ratio, *RR* = Relative Risk, *CI* = Confidence Intervals, M = Male, F = Female

Protective Factor Results**PsychINFO (via EBSCO)**

23/11/15

9. Suicid* AND self-harm*	105
10. Suicid* AND resilien*	22
11. Suicid* AND recovery	13
12. Suicid* AND protect*	80
13. Suicid* AND cop*	56
14. Suicid* AND preven*	481
15. Suicid* AND reduc*	227

Total = 984

CINAHL (via EBSCO)

29/11/15

1. Suicid* AND self-harm*	31
2. Suicid* AND resilien*	5
3. Suicid* AND recovery	10
4. Suicid* AND protect*	21
5. Suicid* AND cop*	32
6. Suicid* AND preven*	211
7. Suicid* AND reduc*	54

Total = 364

Medline (via EBSCO)

04/12/15

1. Suicid* AND self-harm*	146
2. Suicid* AND resilien*	17
3. Suicid* AND recovery	40
4. Suicid* AND protect*	122
5. Suicid* AND cop*	70
6. Suicid* AND preven*	934

7. Suicid* AND reduc* 472

Total = 1801

Total = 3149

AMSTAR – a measurement tool to assess the methodological quality of systematic reviews.**1. Was an 'a priori' design provided?**

The research question and inclusion criteria should be established before the conduct of the review.

- Yes
- No
- Can't answer
- Not applicable

Note: Need to refer to a protocol, ethics approval, or pre-determined/a priori published research objectives to score a "yes."

2. Was there duplicate study selection and data extraction?

There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.

- Yes
- No
- Can't answer
- Not applicable

Note: 2 people do study selection, 2 people do data extraction, consensus process or one person checks the other's work.

3. Was a comprehensive literature search performed?

At least two electronic sources should be searched. The report must include years and databases used (e.g., Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.

- Yes
- No
- Can't answer
- Not applicable

Note: If at least 2 sources + one supplementary strategy used, select "yes" (Cochrane register/Central counts as 2 sources; a grey literature search counts as supplementary).

4. Was the status of publication (i.e. grey literature) used as an inclusion criterion?

The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.

- Yes
- No
- Can't answer
- Not applicable

Note: If review indicates that there was a search for "grey literature" or "unpublished literature," indicate "yes." SIGLE database, dissertations, conference proceedings, and trial registries are all considered grey for this purpose. If searching a source that contains both grey and non-grey, must specify that they were searching for grey/unpublished lit.

5. Was a list of studies (included and excluded) provided?

A list of included and excluded studies should be provided.

- Yes
- No
- Can't answer
- Not applicable

Note: Acceptable if the excluded studies are referenced. If there is an electronic link to the list but the link is dead, select "no."

6. Were the characteristics of the included studies provided?

In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g., age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.

- Yes
- No
- Can't answer
- Not applicable

Note: Acceptable if not in table format as long as they are described as above.

Quality Appraisal

Author, Date, Country	Total (N) and (N) directly exploring Protective Factors	Study Design	Appropriate Methods	Description of Data Extraction	Data Quality	Description of Data Analysis	AMSTAR Score
Aguilar, E. J., & Siris, S. G. (2007). Spain	Antipsychotics (N = Not Stated) (N = Not Stated)	SR	Yes	Poor	Poor	Poor	4
Barbui, C., Esposito, E., & Cipriani, A. (2009). Italy	SSRI & Risk of Suicide (N = 8) (N = 8)	MA	Yes	Good	Good	Good	10
Bell, J. (2014). United Kingdom	Internet (N = Not Stated) (N = Not Stated)	SR	Yes	Poor	Poor	Poor	4
Bonnewyn, A., Shah, A., & Demyttenaere, K. (2009). Belgium	Suicidality Older People (N = Not Stated) (N = Not Stated)	SR	Yes	Appropriate	Poor	Good	5
Bouris, A., Guilamo-Ramos, V., Pickard, A., Shiu, C., Loosier, P. S., Dittus, P., ... & Waldmiller, J. M. (2010). United States	Parental Influences on LGBT Youth Well-being (N = 14) (N = 6)	SR	Yes	Appropriate	Good	Good	8
Colucci, E., & Martin, G. (2007). Australia	Ethnocultural aspects of suicide in young people (N = Not Stated)	SR	Yes	Poor	Poor	Good	3

Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S., & Montgomery, P. (2013). United Kingdom	Internet Use (<i>N</i> = 16) (<i>N</i> = 7)	SR	Yes	Good	Good	Good	10
Fässberg, M. M., Orden, K. A. V., Duberstein, P., Erlangsen, A., Lapierre, S., Bodner, E., ... & Waern, M. (2012). Sweden	Social Factors Older Adulthood (<i>N</i> = 16) (<i>N</i> = 4)	SR	Yes	Appropriate	Appropriate	Good	7
Ferrer, P., Ballarín, E., Sabaté, M., Vidal, X., Rottenkolber, M., Amelio, J., ... & Ibáñez, L. (2014). Spain	Antiepileptic drugs (<i>N</i> = 11) (<i>N</i> = 5)	SR	Yes	Good	Good	Good	11
Gearing, R. E., & Lizardi, D. (2009). United States	Religion (<i>N</i> = Not Stated) (<i>N</i> = 20)	SR	Yes	Appropriate	Appropriate	Good	6
Gómez-Durán, E. L., Martín-Fumadó, C., & Hurtado-Ruíz, G. (2012). Spain	Patients with Schizophrenia (<i>N</i> = 69) (<i>N</i> = 3)	SR	Yes	Good	Appropriate	Good	7
Guzzetta, F., Tondo, L., Centorrino, F., & Baldessarini, R. J. (2007). United States	Lithium & MDD (<i>N</i> = 8) (<i>N</i> = 8)	SR	Yes	Good	Appropriate	Good	7
Haw, C., Hawton, K., Gunnell, D., & Platt, S. (2014). United Kingdom	Economic Recession (<i>N</i> = Not Stated) (<i>N</i> = 1)	SR	Yes	Good	Appropriate	Good	9

Johnson, J., Wood, A. M., Gooding, P., Taylor, P. J., & Tarrrier, N. (2011). United Kingdom	Resilience (<i>N</i> = 71) (<i>N</i> = Not Stated)	SR	Yes	Appropriate	Appropriate	Good	7
Lakeman, R., & FitzGerald, M. (2008). Australia	Coping (<i>N</i> = 12) (<i>N</i> = Not Stated)	SR	Yes	Good	Good	Good	9
Lester, D., Battuello, M., Innamorati, M., Falcone, I., de Simoni, E. N. R. I. C. A., del Bono, S. D., ... & Pompili, M. (2010). United States	Sports Participation (<i>N</i> = Not Stated) (<i>N</i> = Not Stated)	SR	Yes	Appropriate	Poor	Good	5
Lizardi, D., & Gearing, R. E. (2010). United States	Religion (<i>N</i> = Not Stated)	SR	Yes	Appropriate	Appropriate	Good	6
Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). United Kingdom	Protective Factors (<i>N</i> = 327) (<i>N</i> = Not Stated)	SR	Yes	Good	Appropriate	Good	8
Payne, S., Swami, V., & Stanistreet, D. L. (2008). United Kingdom	Gender & Social Construct (<i>N</i> = Not Stated) (<i>N</i> = Not Stated)	SR	Yes	Appropriate	Poor	Appropriate	5
Pompili, M., Sher, L., Serafini, G., Forte, A., Innamorati, M., Dominici, G., ... & Girardi, P. (2013). Italy	PTSD in Veterans (<i>N</i> = 18) (<i>N</i> = 1)	SR	Yes	Good	Good	Good	10
Sancho, F. M., & Ruiz, C. N. (2010).	Suicide in Dentists	SR	Yes	Appropriate	Poor	Appropriate	4

United Kingdom	(<i>N</i> = Not Stated) (<i>N</i> = Not Stated)						
Schrijvers, D. L., Bollen, J., & Sabbe, B. G. (2012). Belgium	Gender Differences (<i>N</i> = Not Stated) (<i>N</i> = Not Stated)	SR	Yes	Appropriate	Poor	Appropriate	5
Skerrett, D. M., Kølves, K., & De Leo, D. (2015). Australia	LGBT (<i>N</i> = 11) (<i>N</i> = Not Stated)	SR	Yes	Good	Poor	Good	7
Zhang, J., Yan, F., Li, Y., & McKeown, R. E. (2013). United Kingdom	Body Mass Index (<i>N</i> = Not Stated) (<i>N</i> = Not Stated)	SR	Yes	Good	Poor	Good	7

Note. MA = Meta-analysis, SR = Systematic Review

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- Barbui, C., Esposito, E., & Cipriani, A. (2009). Selective serotonin reuptake inhibitors and risk of suicide: a systematic review of observational studies. *Canadian Medical Association Journal, 180*(3), 291-297.
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- Aguilar, E. J., & Siris, S. G. (2007). Do antipsychotic drugs influence suicidal behavior in schizophrenia. *Psychopharmacol Bulletin*, *40*(3), 128-42.
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Key Findings of Included Studies

Study, Location	Study Description			Review Type	Applicable Theme(s) (Subthemes)	Main Findings	Limitations
	Context	N Studies	Demographics				
Barbui, C., Esposito, E., & Cipriani, A. (2009). Italy	Depressed Individuals using SSRIs	(N = 8)	Age: Adolescent-Elderly (reported separately) Gender: M & F	Systematic Review and Meta-analysis	Health (Medication)	Among adults, SSRI exposure significantly decreased the risk of completed or attempted suicide (random-effect <i>OR</i> 0.57, 95% CI 0.47–0.70). Among elderly people (aged 65 or more years), exposure to SSRIs had a significant protective effect (random-effect <i>OR</i> 0.46, 95% CI 0.27–0.79).	Not all studies gave information about specific drugs, which may have had an effect.
Bouris, A., Guilamo-Ramos, V., Pickard, A., Shiu, C., Loosier, P. S., Dittus, P., ... & Waldmiller, J. M. (2010). United States	Parental Influences on LGBT Youth Well-being	(N = 14)	Age: 10-24 Gender: M & F	Systematic Review	Family (Sexuality)	Parent-child relationships characterized by closeness and support had a protective association with suicide among LGB youth. Family connectedness was negatively associated with suicide and accounted for a greater amount of variance in suicidal behavior than sexual orientation or any other protective factor. Perceived parental caring was negatively associated with suicidal tendencies for LGB youth.	Key limitation in the extant literature is the reliance on convenience samples of LGB youth. Of the 31 articles, only three presented longitudinal findings. Results indicated a trend to focus on negative, and not positive, parental influences. Limited attention to ethnic minority and rural youth.
Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S., &	Internet Use and Self-Harm/Suicide	(N = 16)	Age: Under 25 Gender: Not reported	Systematic Review	Social Support (Internet Use)	Reported positive influences (although some reported both positive and negative influences). Seven studies reported positive influences of internet forums. Internet forums users were found to develop relationships and	Small number of papers. Lots of single study results, cannot be generalized. No clear outcome measures.

Montgomery, P. (2013). United Kingdom						connect with others, and to seek empathy and support rather than advice. In two studies, potentially positive influences of other internet media were found. In one it was suggested that youth reporting self-harm may be using the internet to connect with others and that this may alleviate psychological distress. In the other, evidence was presented that some participants viewed interactive media as a form of support.	
Ferrer, P., Ballarín, E., Sabaté, M., Vidal, X., Rottenkolber, M., Amelio, J., ... & Ibáñez, L. (2014). Spain	Antiepileptic drugs	(N = 11)	Age: 10+ Gender: M & F	Systematic Review	Health (Medication)	AEDs such as carbamazepine and valproic acid were protective. Gabapentin on patients with bipolar disorder in this study showed a protective effect (<i>OR</i> 0.62, 95% <i>CI</i> 0.41-0.94). Comparing current users and nonusers of AEDs, the current use of AEDs provided a protective effect for patients with epilepsy alone (<i>OR</i> 0.59, 95% <i>CI</i> 0.35-0.98); however, patients with depression alone had an increased risk of suicide (<i>OR</i> 1.65, 95% <i>CI</i> 1.24-2.19).	No gray literature search.
Haw, C., Hawton, K., Gunnell, D., & Platt, S. (2014). United Kingdom	Economic Recession	(N = Not Stated)	Age: 10+ Gender: M & F	Systematic Review	Social Support (Group Membership)	Membership of social organisations, such as trade unions, church, sports groups or political organisations, has a protective effect on all-cause mortality.	Aggregate-level limitations e.g. blunt measures and problems with heterogeneity in the study population. Recession is not clearly defined and its duration not stated.
Lakeman, R., & Fitzgerald, M. (2008).	Coping	(N = 12)	Age: 14+ Gender: M & F	Systematic Review	Social Support (Social Connections);	HIV-infected men found formal support groups and professional contact helpful.	The studies reviewed had a narrow range of participants.

Australia					Group Membership Family (Family Connectedness)	Social connections were perceived as instrumental in overcoming negative self-perceptions, inspiring hope, providing meaning and moving past being suicidal. Reconnecting with friends, family and seeking (or accepting) help from others is pivotal to recovery.	
Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). United Kingdom	Suicide	(N = Not Stated)	Age: Adult Gender: M & F	Systematic Review	Social Support (Social Connections; Group Membership) Family (Family Connectedness; Children) Health (Pregnancy)	Religious beliefs, religious practice, and spirituality have been associated with a decreased probability of suicide attempts. Perceptions of social and family support and connectedness outside religious affiliation shown to be significantly associated with lower rates of suicidal behavior. Being pregnant and having young children in the home also are protective against suicide.	Small number of studies found.
Pompili, M., Sher, L., Serafini, G., Forte, A., Innamorati, M., Dominici, G., et al. (2013). Italy	PTSD in veterans	(N = 16)	Age: Adult Gender: M & F	Systematic Review	Social Support (Social Connections) Family (Marriage)	Being satisfied with social networks and being married were protective factors for suicidal risk in veterans without PTSD, however these were less protective in veterans reporting PTSD symptoms.	No meta-analysis. Some studies did not have adequate follow-ups.

Note. OR = Odds Ratio, CI = Confidence Intervals, M = Male, F = Female

PP No.

Suicide Risk Assessment Study:

Participant Information Sheet

My name is Kirstie McClatchey and I am a PhD student within the School of Life, Sport and Social Sciences at Edinburgh Napier University. Thank you for taking the time to participate in my research.

This study seeks to understand the ways that people assess the risk of suicide in their patients and clients. The study is concerned with professional practice only, and as such I am looking to recruit health care workers:

- **Aged over 18 years who work in Emergency Departments.**
- **Who have previously carried out suicide risk assessment as part of their routine practice.**

At present almost nothing is known about the scale of variation across services, practices and different professions when it comes to assessing someone's risk of suicide. The findings from the study will be used to inform the development of a larger research project, which aims to develop potentially useful suicide risk assessment tools which will be feasible for use in busy professional practice.

If at any point during this study you feel that you have changed your mind and do not want to take part any more please let me know via the contact details quoting the number at the top of this sheet and I will have your questionnaire destroyed. You don't need to give a reason for this. It will not be possible for you to be identified in any reporting of the data gathered as no identifying information is asked for. All data collected will be kept in a secure place (on a password protected account on my personal computer within a lockable office). Only I will have access to the data, which will be kept for ten years, in line with information governance procedures and will be destroyed in 2023. This research is being funded by Edinburgh Napier University. The results may be published in a journal or presented at an academic conference. However, all published or presented findings will be reported as grouped data and you will not be identifiable. If you would like to contact an independent person who knows about this project but is not involved in it you are welcome to contact Dr Kathy Charles (k.charles@napier.ac.uk), who is a senior lecturer at Edinburgh Napier University and my direct Line Manager.

If you have any questions please email me at 40186601@napier.ac.uk and I will reply as soon as I can.

PP No.

**Suicide Risk Assessment Questionnaire
Study:
Participant Consent Form**

Please fill out both sections and return.

Please tick:

- I have read and understood the information sheet and this consent form. I have had an opportunity to ask questions about my participation.
- I understand that I am under no obligation to take part in this study.
- I understand that I have the right to withdraw from this study at any stage without giving any reason.
- I agree to participate in this study.

Signature of participant: _____

Signature of researcher: _____

Date: _____

After completion of this questionnaire, please indicate whether you would be interested in taking part in an interview (at a location and time most convenient to you), lasting no more than 30minutes, discussing the topic of suicide risk assessment in your current practice. You under no obligation to take part in this study, and even if you take part in the interview, you can still withdraw your data and have your voice recorded interview destroyed at any time.

- I would be interested in taking part in a follow-up interview
- I would NOT be interested in taking part in a follow-up interview
- If you are interested please provide an email address below so that you can be contacted.

***Suicide Risk Assessment in Accident & Emergency Departments in
Scotland Survey Debrief Sheet***

Thank you for taking the time to take part in this study. The study aims to identify what suicide risk assessment measures/tools are currently being used in practices across Scotland. It is also interested in finding out why people choose to use particular suicide risk assessment measures/tools and why they don't use others (or any if that is the case). We know anecdotally that many clinicians across various types of practices and professions rely on their clinical judgment alone when making judgments and decisions about a suicidal patient. We also know from recent NICE guidelines that there are no specific risk assessment measures/tools that have been recommended as 'gold standard' - this is largely due to the wide variation in practice and the very small amount of research that has been carried out on the topic to date. The study's key aim is therefore to identify:

- 1) The scale of variation across practices and professions in terms of the suicide risk assessment measures/tools used
- 2) The scale of variation across practices and professions in terms of clinician reliance on clinical judgment to help them make decisions about suicidal patients.
- 3) The extent to which professionals working with suicidal patients believe suicide risk assessment measures/tools may be useful (or not) in their practice.

To our best knowledge, this is the first UK based descriptive study that is looking only to identify this key 'baseline' information. We hope to use this survey to shape our future research and ultimately add to the literature in the area of suicide risk assessment in a way that will not only be interesting to academics but hopefully useful to those in practice. If you feel affected by suicide or feel the need to talk to someone please contact a friend or trusted individual, or phone the Samaritans on 08457 90 90 90 or Breathing Space on 0800 83 85 87. If you would like to learn more about suicide prevention work that is happening in Scotland please see the Choose Life website: <http://www.suicideprevention.org.uk/>

I would like to thank you once again for your participation and welcome any questions or comments - please get in touch via the contact details below:

Kirstie McClatchey
Edinburgh Napier University
Edinburgh
EH11 4BN
email: 40186601@live.napier.ac.uk

Ethical Review Feedback Sheet

Student Name:	Kirstie McClatchey
Supervisor:	Dr Jennifer Murray
Project Title:	Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure
Name(s) of Reviewer(s):	Linda Veitch; Ruth Paterson

	Yes	No	Comments
Section 1 – General Information			
Is all the required information provided?	Y		
Section 2 – Consent & Care of Participants			
Are there any areas of concern identified in questions 1-10 (i.e. researcher has selected “No” to any of these items)?		N	
Are there any areas of concern identified in questions 11-14 (i.e. researcher has selected “Yes” to any of these items)?		N	
Has the researcher ticked the correct box A or B?	Y		
Section 3 – Box A/B			
1. Background Information			
Is adequate background information provided for the research?	Y		
2. Aims & Research Questions			
Are the aims & research questions clear?	Y		
3. Participants			
Are there any concerns about the nature and size of the sample?		N	
Are there any concerns about the inclusion/exclusion criteria?		N	Might want to say primary care providers who carry out initial suicide risk assessment.
Are there any concerns about the recruitment strategy?		N	
4. Research Methods & Measurements			
Is the project outline sufficiently detailed to allow a decision about ethical aspects?	Y		
5. Risks to Participants			
Are there any concerns about potential risks to participants?		N	
6. Consent and participant information arrangements, debriefing			

Are there any concerns about the consent, participant information or debriefing arrangements?		N	.
7. Ethical Considerations (Box B only)			
Are there any ethical issues that have not been addressed adequately?		N	
Section 4 – Additional Information & Declaration			
Are all the required additional materials supplied?	Y		
Where applicable, are additional materials on headed paper?	Y		
Is the language on any additional materials appropriate?	Y		
Are the contact details for the researcher, the supervisor and the independent advisor provided on the Participant Information and debrief sheets?	Y		
Has the declaration been signed?	Y		
Participant Information Sheet			
Is there sufficient information provided to enable the participant to give informed consent?	Y		
Is there information about the maintenance of privacy and confidentiality for the participant's personal details?	Y		
Consent Form			
Is the form structured appropriately, providing clear evidence of informed consent?	Y		
Debrief Sheet			
Are there any concerns about the debrief sheet?		N	
Other additional materials (e.g. questionnaires, interview schedules, stimuli, evidence of permission, recruitment posters/text)			
Are there any concerns about any other additional materials?			

Recommendation of Reviewers:

Approved		Y
Referred		.
Rejected		Rationale for this and action(s)



Research & Development
 58 Lister Street
 University Hospital Crosshouse
 Kilmarnock KA2
 0BB

Miss Kirstie McClatchey
 Edinburgh Napier University
 Sighthill Campus
 Edinburgh
 EH11 4BN

Date 1 March 2016
 Your Ref
 Our Ref AG/KLB/AMK 2015AA74
 Enquiries to Karen Bell
 Extension 25850
 Direct line 01563 825850
 Fax 01563 825806
 Email Karen.bell@aaaht.scot.nhs.uk

Dear Miss McClatchey

Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards

I confirm that NHS Ayrshire and Arran have reviewed the undernoted documents and grant R&D Management approval for the above study.

Documents received:

Document	Version	Date
IRAS R&D Form	5.2	4 December 2015
IRAS SSI Form	5.2.1	24 February 2016
Protocol	/	/
Participant Information Sheet – Interview	/	/
Participant Information Sheet – Questionnaire	/	/
Consent Form – Interview	/	/
Consent Form – Questionnaire	/	/
Questionnaire	/	/
Interview Schedule	/	/

Debrief Sheet – Interview	/	/
Debrief Sheet – Questionnaire	/	/

The terms of approval state that the investigator authorised to undertake this study within NHS Ayrshire & Arran is: -

- Kirstie McClatchey, Edinburgh Napier University

With additional investigator: -

- Dr Jennifer Murray, Edinburgh Napier University

The sponsors for this study are Edinburgh Napier University.

This approval letter is valid until 1 July 2017.

Regular reports of the study require to be submitted. Your first report should be submitted to Dr K Bell, Research & Development Manager in 12 months time and subsequently at yearly intervals until the work is completed.

Please note that as a requirement of this type of study your name, designation, work address, work telephone number, work e-mail address, work related qualifications and whole time equivalent will be held on the Scottish National Research Database so that NHS R&D staff in Scotland can access this information for purposes related to project management and report monitoring.

In addition approval is granted subject to the following conditions: -

- All research activity must comply with the standards detailed in the Research Governance Framework for Health and Community Care www.cso.scot.nhs.uk/publications/ResGov/Framework/RGFEdTwo.pdf and appropriate statutory legislation. It is your responsibility to ensure that you are familiar with these, however please do not hesitate to seek further advice if you are unsure.
- You are required to comply with Good Clinical Practice (ICH-GCP guidelines may be found at www.ich.org/LOB/media/MEDIA482.pdf), Ethics Guidelines, Health & Safety Act 1999 and Data Protection Act 1998.
- If any amendments are to be made to the study protocol and or the Research Team the Researcher must seek Ethical and Management Approval for the changes before they can be implemented.

- The Researcher and NHS Ayrshire and Arran must permit and assist with any monitoring, auditing or inspection of the project by the relevant authorities.
- The NHS Ayrshire and Arran Complaints Department should be informed if any complaints arise regarding the project and the R&D Department must be copied into this correspondence.
- The outcome and lessons learnt from complaints must be communicated to funders, sponsors and other partners associated with the project.
- As custodian of the information collated during this research project you are responsible at all times for ensuring the security of all personal information collated in line with NHS Scotland policies on information assurance and security, until the secure destruction of these data. The retention time periods for such data should comply with the requirements of the Scottish Government Records Management: NHS Code Of Practice. Under no circumstances should personal data be stored on any unencrypted removable media e.g. laptop, USB or mobile device (for further information and guidance please contact the Information Governance Team based at University Hospital Crosshouse 01563 825831 or 826813).

If I can be of any further assistance please do not hesitate to contact me. On behalf of the department, I wish you every success with the project.

Yours sincerely



Dr Alison Graham
Medical Director

c.c. Nina Hakanpaa, Edinburgh Napier University (sponsor contact)

Lesley Douglas, Finance, Ailsa Hospital

Information Governance, Ailsa Hospital

Dr Dragebo, Clinical Director

Dr Krichell, Clinical Director

Dr Jennifer Murray, Edinburgh Napier University (Academic Supervisor)

www.nhsaaa.net



NHS Borders

Research Administration
Clinical Governance & Quality
Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN



Clinical Governance &
Quality
Borders General Hospital
Melrose
Roxburghshire TD6 9BS

Telephone 01896 826719
Fax 01896 826040
www.nhsborders.org.uk

Dear Miss McClatchey
Date 18 April 2016

Our Ref 15/BORD/34
Enquiries to Joy Borowska
Extension 01896 826717
Email research.governance@borders.scot.nhs.uk

NRS15/192975: Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards

Thank you for sending details of your study to NHS Borders. I can confirm that the Research Governance Committee has reviewed the documentation, and on this basis I am pleased to inform you that this study has management approval for commencement within NHS Borders.

It is a condition of approval that everyone involved in this study abides by the guidelines/protocols implemented by NHS Borders with respect to confidentiality and Research Governance. It is your responsibility to ensure that you are familiar with these, however please do not hesitate to seek advice if you are unsure. As custodian of the information collated during this research project, you are responsible for ensuring the security of all personal information collected, in line with NHS Scotland IT Security policies until the destruction of data.

Please advise the R&D Office immediately of any changes to the project such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Borders. Please also advise the R&D office when recruitment has ended and when the study has been fully completed.

May I take this opportunity to wish you every success with your project. Please do not hesitate to contact the R&D Office should you require any further assistance.

Yours sincerely

A handwritten signature in cursive script that reads 'Laura Jones'.

Mrs Laura Jones
Head of Quality and Clinical Governance



**Research and Development Support Unit
Ground Floor
Dumfries and Galloway Royal Infirmary
Bankend Road
Dumfries
DG1 4AP**



Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN

Date: 29th February 2016

Our ref: 15/DGY/047

Study title: Developing a Feasible Suicide Risk Assessment Tool

Dear Miss McClatchey

Thank you for sending me details of your study with a request for management approval. I can confirm that the study review team has reviewed the documentation and on this basis I am pleased to inform you that your study has management approval for commencement within NHS Dumfries and Galloway.

It is a condition of this approval that everyone involved in this study abides by the guidelines/protocols laid down by this Health Board in respect of confidentiality and Research Governance. It is your responsibility to ensure you are familiar with these; please do not hesitate to seek advice if you are unsure. (Copies of Research Governance Framework documents are available via the website www.sehd.scot.nhs.uk/cso and then use the publications link).

We also note that it is the sponsor's responsibility to ensure that appropriate training is in place for all local investigators. It is important that all research must be carried out in compliance with the Research Governance Framework for Health and Community Care and the new EU Clinical Trials Directive (for clinical trials involving investigational medicinal products).

As part of the Health Board's responsibilities under Research Governance we will be monitoring studies at least on an annual basis. It is therefore important that all records in connection with the study are kept up to date and available for review. We are also required to inform you that details of your study will be entered onto our R&D database. As custodian of the information collated during this research project, you are responsible for ensuring the security of all personal information collected, in line with NHS Scotland IT Security Policies, until the destruction of this data.

**Research and Development Support Unit
Ground Floor
Dumfries and Galloway Royal Infirmary
Bankend Road
Dumfries
DG1 4AP**




If your study is adopted by UKCRN into a portfolio then please advise this department of recruitment figures by adding accrual data to that database on a monthly basis.

Please notify the R&D office immediately you become aware of any serious adverse events associated with this research.

You must contact the R&D Department if/when the project is subject to any minor or substantial amendments so that these can be appropriately assessed, and approved, where necessary. I understand that performance of this study will not infringe on NHS Dumfries and Galloway's ability to deliver our usual level of service.

May I take this opportunity to wish you every success with your project. Please do not hesitate to seek help and advice from the R&D Support Unit (ext 33164 and 33165) if there is anything which you feel you would like assistance with. I look forward to hearing about your work as it progresses and would appreciate a note of monthly recruitment figures, a short annual report and a final report when the study is complete.

Yours sincerely


PP GJ Baxter
Research lead

Cc
SREDA database

Medical Director

Hayfield House
Hayfield Road
KIRKCALDY
KY2 5AHMiss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BNDate 8 March 2016
Our Ref 15-110 192975Enquiries to Aileen Yell
E-mail aileenyell@nhs.net
Telephone 01383 623623 Ext
20940
Website www.nhsfife.org

Dear Miss McClatchey

Project Title: Developing a Feasible Suicide Risk Assessment Tool

Thank you for your application to carry out the above project. Your project documentation (detailed below) has been reviewed for resource and financial implications for NHS Fife and I am happy to inform you that NHS permission for the above research has been granted on the basis described in the application form, protocol and supporting documentation. The documents reviewed were:

Document	Version	Date
Consent Form		
Participant Questionnaire Information Sheet		
Participant Questionnaire Consent Form		
Questionnaire		
Questionnaire Debrief Sheet		
Interview Information Sheet		
Interview Schedule		
Participant Interview Debrief Sheet		
IRAS R&D Form	5.2.0	4 December 2015
IRAS SSI Form	5.2.0	25 January 2016
Study-Wide Governance Report		3 February 2016
IRAS SSI Form	5.2.1	3 March 2016

The terms of the approval state that you are the Principal Investigator authorised to undertake this study within NHS Fife. I understand that the extent of your involvement in Fife will be that you send questionnaires via post to staff at Victoria Hospital who will post them back to you on completion.

I note that review by an NHS Research Ethics Committee has not been necessary since the study involves NHS staff only. The sponsors for this study are Edinburgh Napier University.

Details of our participation in studies will be included in annual returns we are expected to complete as part of our agreement with the Chief Scientist Office. Regular reports of the study require to be submitted. Your first report should be submitted to Dr A Wood, R&D Manager, R&D Department, Queen Margaret Hospital, Whitefield Rd, Dunfermline, KY12 OSU (Amanda.wood3@nhs.net) in 12 months time and subsequently at yearly intervals until the work is completed. A Lay Summary will also be required upon completion of the project.

In addition, approval is granted subject to the following conditions:-

⁽ NHS Fife was awarded the Carbon Trust Standard in February 2010 and is the first Scottish NHS Board to achieve this accolade.





All research activity must comply with the standards detailed in the Research Governance Framework for Health & Community Care (<http://www.cso.scot.nhs.uk/publications/resgov/resgov.htm>), health & safety regulations, data protection principles, other appropriate statutory legislation and in accordance with Good Clinical Practice (GCP).

Any amendments which may subsequently be made to the study should also be notified to Aileen Yell, Research Governance Officer (aileenyell@nhs.net), as well as the appropriate regulatory authorities. Notification should also be given of any new research team members post approval and/or any changes to the status of the project.

This organisation is required to monitor research to ensure compliance with the Research Governance Framework and other legal and regulatory requirements. This is achieved by random audit of research. You will be required to assist with and provide information in regard to monitoring and study outcomes (including providing recruitment figures to the R&D office as and when required).

As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until the destruction of this data. Permission is only granted for the activities for which a favourable opinion has been given by the REC (and which have been authorised by the MHRA where appropriate).

The research sponsor or the Chief Investigator or local Principal Investigator at a research site may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety. The R&D office (aileenyell@nhs.net) should be notified that such measures have been taken. The notification should also include the reasons why the measures were taken and the plan for further action. The R&D office should be notified within the same time frame of notifying the REC and any other regulatory bodies.

I would like to wish you every success with your study and look forward to receiving a summary of the findings for dissemination once the project is complete.

Yours sincerely

A handwritten signature in black ink, appearing to read 'F. Elliot'.

DR FRANCES ELLIOT
Medical Director
NHS Fife

Cc : Aileen Yell, Research Governance Officer, NHS Fife, Queen Margaret Hospital, Dunfermline



Date: 29 February 2016
 Your Ref:
 Our Ref:
 Direct Line: 01324 677564
 Email: rosemarywilson@nhs.net
 R&D ref: FV894

Miss Kirstie McClatchey
PhD research student
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN

Dear Miss McClatchey

Study title: Developing a clinically meaningful and feasible suicide risk assessment measure for use in Accident and Emergency.
NRES number: n/a

I am pleased to confirm that I formally gave Management Approval to the study above on 29 February 2016.

This approval is subject to the following conditions:

- A signed letter of access for yourself


This approval is granted subject to your compliance with the following:

1. Any amendments to the protocol or research team must have Ethics Committee and R&D approval (as well as approval from any other relevant regulatory organisation) before they can be implemented. Please ensure that the R&D Office and (where appropriate) NRS are informed of any amendments as soon as you become aware of them.
2. You and any local Principal Investigator are responsible for ensuring that all members of the research team have the appropriate experience and training, including GCP training if required.
3. All those involved in the project will be required to work within accepted guidelines of health and safety and data protection principles, any other relevant statutory legislation, the Research Governance Framework for Health and Community Care and IHC-GCP guidelines. A copy of the Framework can be accessed via the Chief Scientist Office website at: <http://www.cso.scot.nhs.uk/Publications/ResGov/Framework/RGFEdTwo.pdf> and ICH-GCP guidelines may be found at <http://www.ich.org/LOB/media/MEDIA482.pdf>
4. As custodian of the information collected during this project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT security policies, until the destruction of this data.
5. You or the local Principal Investigator will be required to provide the following reports and information during the course of your study:

- A progress report **annually**
- Recruitment numbers on a **monthly** basis (if your study should be added to the NIHR research Portfolio you will receive a separate letter from the R&D Office detailing the steps to be taken)
- Report on SAEs and SUSARs if your study is a Clinical Trial of an Investigational Medicinal Product
- Any information required for the purpose of internal or external audit and monitoring
- Copies of any external monitoring reports
- Notification of the end of recruitment and the end of the study
- A copy of the final report, when available.
- Copies of or full citations for any publications or abstracts

The appropriate forms will be provided to you by the Research and Development office when they are needed. Other information may be required from time to time.

Yours sincerely



PP

MISS TRACEY GILLIES
Medical Director

CC:

Jmurray2@napier.ac.uk



Administrator: Mrs Elaine O'Neill
Telephone Number: 0141 232 1815
E-Mail: elaine.o'neill2@ggc.scot.nhs.uk
Website: www.nhsggc.org.uk/r&d

R&D Management Office
West Glasgow ACH
Dalnair Street
Glasgow G3 8SW

20 April 2016

Miss Kirstie McClatchey

Edinburgh Napier University

Sighthill Campus

Edinburgh

EH11 4BN

NHS GG&C Board Approval

Dear Miss K McClatchey,

Study Title:	Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards.
Principal Investigator:	Miss Kirstie McClatchey
GG&C HB site	NHS GG&C A&E Departments
Sponsor	Edinburgh Napier University
R&D reference:	GN15CP582
REC reference:	N/A
Protocol no:	V1_050615 (Ethics Appl)

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Approval** for the above study.

Conditions of Approval

1. **For Clinical Trials** as defined by the Medicines for Human Use Clinical Trial

Regulations, 2004 a. During the life span of the study GGHB requires the

following information relating to this site

- i. Notification of any potential serious breaches.
- ii. Notification of any regulatory inspections.

It is your responsibility to ensure that all staff involved in the study at this site have the appropriate GCP training according to the GGHB GCP policy (www.nhsggc.org.uk/content/default.asp?page=s1411), evidence of such training to be filed in the site file.

For all studies the following information is required during their lifespan.

- a. Recruitment Numbers on a monthly basis
- b. Any change of staff named on the original SSI form
- c. Any amendments – Substantial or Non Substantial
- d. Notification of Trial/study end including final recruitment figures
- e. Final Report & Copies of Publications/Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Your personal information will be held on a secure national web-based NHS database. I wish you every success with this research study

Yours sincerely,



Mrs Elaine O'Neill

Senior Research Administrator

Cc: Nina Hakanpaa (Edinburgh Napier University)

Board Approval_GN15CP582
Research and Development



Foresterhill House Annexe
Foresterhill
ABERDEEN
AB25 2ZB

Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN

Date 19/04/2016
Project No 2015AE003

Enquiries to Lynn Massie
Extension 53846
Direct Line 01224 553846
Email grampian.randdpermissions@nhs.net

Dear Miss McClatchey

Management Permission for Non-Commercial Research

STUDY TITLE: Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards.

PROTOCOL NO: None
REC REF: N/A
NRS REF: NRS15/192975

Thank you very much for sending all relevant documentation. I am pleased to confirm that the project is now registered with the NHS Grampian Research & Development Office. The project now has R & D Management Permission to proceed locally. This is based on the documents received from yourself and the relevant Approvals being in place.

All research with an NHS element is subject to the Research Governance Framework for Health and Community Care (2006, 2nd edition), and as Chief or Principal Investigator you should be fully committed to your responsibilities associated with this.


R&D Permission is granted on condition that:

- 1) The R&D Office will be notified and any relevant documents forwarded to us if any of the following occur:**

- **Any Serious Breaches in Grampian (Please forward to pharmaco@abdn.ac.uk).**
 - **A change of Principal Investigator in Grampian or Chief Investigator.**
 - **Any change to funding or any additional funding**
- 2) **The R&D Office will be notified when the study ends.**
- 3) **The Sponsor will notify all amendments to the relevant National Co-ordinating centre. For single centre studies, amendments should be notified to the R&D office directly.**

We hope the project goes well, and if you need any help or advice relating to your R&D Management Permission, please do not hesitate to contact the office.

Yours sincerely



Susan Ridge
Non-Commercial Manager

cc: Research Monitor

Sponsor:

Edinburgh Napier University

Professor Angus Watson
 Research & Development Director
 NHS Highland Research & Development Office
 Room S101
 Centre for Health Science
 Old Perth Road
 Inverness
 IV2 3JH



Tel: 01463 255822
 Fax: 01463 255838
 E-mail: angus.watson@nhs.net

23 March 2016

NHS Highland R&D ID: 1162
 NRSPCC ID: NRS15/192975

Miss Kirstie McClatchey
 Research Student
 Edinburgh Napier University
 Sighthill Campus
 Sighthill Court
 Edinburgh
 EH11 4BN

Dear Miss McClatchey,

Management Approval for Non-Commercial Research

I am pleased to tell you that you now have Management Approval for the research project entitled: '**Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for Use in Accident & Emergency Wards.**' [Protocol No V#]. I acknowledge that:

- The project is sponsored by the Edinburgh Napier University.
- The project has no external funding.
- Research Ethics approval for the project is not required.
- The project is Site Specific Assessment exempt.

The following conditions apply:

- The responsibility for monitoring and auditing this project lies with the Edinburgh Napier University.

This study will be subject to ongoing monitoring for Research Governance purposes and may be audited to ensure compliance with the Research Governance



Headquarters:

NHS Highland, Assynt House, Beechwood Park, Inverness, IV2 3HG

Chairman: Mr Garry Coutts
 Chief Executive: Elaine Mead

Highland NHS Board is the common name of Highland Health Board

Framework for Health and Community Care in Scotland (2006, 2nd Edition), however prior written notice of audit will be given.

- All amendments (minor or substantial) to the protocol should be copied to the NHS Highland Research and Development Office to obtain R&D Amendment Approval.
- The paperwork concerning all incidents, adverse events and serious adverse events, thought to be attributable to participant's involvement in this project should be copied to the NHS Highland R&D Office.
- Monthly recruitment rates should be notified to the NHS Highland Research and Development Office, detailing date of recruitment and the participant trial ID number. This should be done by e-mail on the first week of the following month.

Please report the information detailed above, or any other changes in resources used, or staff involved in the project, to the NHS Highland Research and Development Manager, Frances Hines (01463 255822, frances.hines@nhs.net).

Yours sincerely,



Frances Hines
Research, Development and Innovation Manager

cc Frances Hines, R&D Manager, NHS Highland Research & Development Office,
Room S101, The Centre for Health Science, Old Perth Road, Inverness, IV2 3JH

Miss Kirstie McClatchey
 PhD Research Student
 Edinburgh Napier University
 Sighthill Campus
 EDINBURGH
 EH11 4BN

R&D Department
 Corporate Services Building
 Monklands Hospital
 Monkscourt Avenue
 AIRDRIE
 ML6 0JS



Date	23.08.16
Enquiries to	Elizabeth McGonigal, R&D Facilitator
Direct Line	01236 712459
Email	elizabeth.mcgonigal@lanarkshire.scot.nhs.uk

Dear Miss McClatchey

Project title: Developing a Clinically Meaningful and Feasible Suicide Risk Assessment for use in Accident & Emergency Wards

R&D ID: L15100

NRS ID Number: 192975

I am writing to you as Chief Investigator of the above study to advise that R&D Management approval has been granted for the conduct of your study within NHS Lanarkshire as detailed below:

NAME	TITLE	ROLE	NHSL SITE TO WHICH APPROVAL APPLIES
Dr Stewart Teece	Consultant in Emergency and Acute Medicine	Local Collaborator	Monklands Hospital
Dr Fiona Burton	Consultant in Emergency and Acute Medicine	Local Collaborator	Hairmyres Hospital
Dr Andrew Graham	Consultant in Emergency and Acute Medicine	Local Collaborator	Wishaw General Hospital

For the study to be carried out you are subject to the following conditions:

L15100_ManagementApproval_230816

Page 1 of 3

Cont...

NHS Lanarkshire Research & Development: Management Approval Letter

Project I.D. Number: L15100



Conditions

- You are required to comply with Good Clinical Practice, Ethics Guidelines, Health & Safety Act 1999 and the Data Protection Act 1998.
- The research is carried out in accordance with the Scottish Executive's Research Governance Framework for Health and Community Care (copy available via the Chief Scientist Office website:
<http://www.cso.scot.nhs.uk/> or the Research & Development Intranet site:
<http://firstport2/staffsupport/research-and-development/default.aspx>
- You must ensure that all confidential information is maintained in secure storage. You are further obligated under this agreement to report to the NHS Lanarkshire Data Protection Office and the Research & Development Office infringements, either by accident or otherwise, which constitutes a breach of confidentiality.
- Clinical trial agreements (if applicable), or any other agreements in relation to the study, have been signed off by all relevant signatories.
- You must contact the Lead Nation Coordinating Centre if/when the project is subject to any minor or substantial amendments so that these can be appropriately assessed, and approved, where necessary.
- You notify the R&D Department if any additional researchers become involved in the project within NHS Lanarkshire
- You notify the R&D Department when you have completed your research, or if you decide to terminate it prematurely.
- You must send brief annual reports followed by a final report and summary to the R&D office in hard copy and electronic formats as well as any publications.
- If the research involves any investigators who are not employed by NHS Lanarkshire, but who will be dealing with NHS Lanarkshire patients, there may be a requirement for an SCRO check and occupational health assessment. If this is the case then please contact the R&D

Department to make arrangements for this to be undertaken and an honorary contract issued.

I trust these conditions are acceptable to you.

Yours sincerely,



Raymond Hamill – Corporate R&D Manager

NAME	TITLE	CONTACT ADDRESS	ROLE
Dr Stewart Teece Dr Fiona Burton Dr Andrew Graham	Consultant in Emergency and Acute Medicine	Stewart.Teece@lanarkshire.scot.nhs.net fionaburton@nhs.net Andrew.Graham@lanarkshire.scot.nhs.net	Local Collaborators
Dr Jennifer Murray		j.murray2@napier.ac.uk	Sponsor Contact

University Hospitals Division

Queen's Medical Research Institute
47 Little France Crescent, Edinburgh, EH16 4TJ

SS/GM/Approval

3rd February 2016

Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN

Research & Development
Room E1.12
Tel: 0131 242 3330

Email:
R&DOffice@nhslothian.scot.nhs.uk

Director: Professor David E Newby

Dear Miss McClatchey,

Lothian R&D Project No: 2016/0047

Title of Research: Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards.

REC No: N/A

Participant Information Sheet:

Questionnaire Information Sheet – Appendix 3
Interview Information Sheet – Appendix 7

Consent Form:

Questionnaire Consent Form – Appendix 4
Interview Consent Form – Appendix 8

Protocol: Edinburgh Napier University Ethics Form & Approval – Appendix 2

I am pleased to inform you that this study has been approved for NHS Lothian and you may proceed with your research, subject to the conditions below. This letter provides Site Specific approval for NHS Lothian.

Please note that the NHS Lothian R&D Office must be informed if there are any changes to the study such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Lothian.

Substantial amendments to the protocol will require approval from the ethics committee which approved your study and the MHRA where applicable.

Please inform this office when recruitment has closed and when the study has been completed.

I wish you every success with your study.

Yours sincerely

A handwritten signature in black ink that reads 'Susan Shepherd'.

Ms Susan Shepherd
Head of Research Governance

cc: Dr Andrew Flapan, Associate Medical Director - Medicine Services, RIE
Ms Jacqui Campbell, General Manager, St John's Hospital

Research and Development

10 May 2016

Clinical Governance Support Team
Brawick House
South Road
Lerwick
Shetland
ZE1 0RB

Our Ref: 04RG1617

Enquiries to: Fiona Morgan
Extension: 3234
Direct Line: 01595 743234
Email: fionamorgan@nhs.net

Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
Edinburgh
EH11 4BN

Dear Miss McClatchey

Project Title: Developing a Feasible Suicide Risk Assessment Tool**REC Ref: n/a****NRS Ref: NRS15/192975**

I understand from NRS Permissions Coordinating Centre that you hope to include Shetland as a site for the above named study. The papers they provided have been reviewed and I am pleased to confirm that the study is now registered with NHS Shetland and has approval to proceed locally.

All research with an NHS element is subject to the Research Governance Framework for Health and Community Care (2006, 2nd edition), and as Chief or Principal Investigator you should be fully committed to your responsibilities associated with this.

Can you please keep us informed by sending the following items:

- A copy of the final report and information about where it has or is going to be published.
- Notification of changes to the protocol, issues and problems arising throughout the study and any changes in research personnel.

Wishing you every success with your research.

Yours sincerely,

Dr R Diggle
Medical Director



17 May 2016

Miss Kirstie McClatchey
Edinburgh Napier University
Sighthill Campus
EDINBURGH
EH11 4BN

Dear Miss McClatchey,

R&D MANAGEMENT APPROVAL – TAYSIDE

Title: Developing a Clinically Meaningful and Feasible Suicide Risk Assessment Measure for use in Accident & Emergency Wards.

Chief Investigator: Miss Kirsty McClatchey

Principal Investigator/Local Collaborator: Miss Kirsty McClatchey

Tayside Ref: 2015MH20 NRS Ref: NRS15/192975

REC Ref: n/a

Sponsor: Edinburgh Napier University

Funder: no external funding

Many thanks for your application to carry out the above project here in NHS Tayside. I am pleased to confirm that the project documentation (as outlined below) has been reviewed, registered and Management Approval has been granted for the study to proceed locally in Tayside.

Approval is granted on the following conditions:-

- ALL Research must be carried out in compliance with the Research Governance Framework for Health & Community Care, Health & Safety Regulations, data protection principles, statutory legislation and in accordance with Good Clinical Practice (GCP).
- All amendments to be notified to TASC R&D Office via the correct amendment pathway. Either direct to the R&D Office or via the Lead Co-ordinating Centre depending on how the study is set up (<http://www.hra.nhs.uk/nhshsc-rd-uk-process-management-amendments/>).
- All local researchers must hold either a Substantive Contract, Honorary Research Contract, Honorary Clinical Contract or Letter of Access with NHS Tayside where required (<http://www.nihr.ac.uk/policy-and-standards/research-passports.htm>).
- TASC R&D Office to be informed of change in Principal Investigator, Chief Investigator or any additional research personnel locally.
- Notification to TASC R&D Office of any change in funding.

- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until destruction of this data.
- All eligible and adopted studies will be added to the Central Portfolio Management System (CPMS) <https://cpms.nihr.ac.uk>. Recruitment figures for eligible and adopted studies must be recorded onto the Portfolio every month. This is the responsibility of the lead UK site. If you are the lead, or only UK site, we can provide help or advice with this. For information, contact Sarah Kennedy (01382 383882 or sarah.kennedy17@nhs.net) or Margaret Marshall (01382 383091 or margaret.marshall7@nhs.net).
- Annual reports are required to be submitted to TASC R&D Office with the first report due 12 months from date of issue of this management approval letter and at yearly intervals until completion of the study.
- Notification of early termination within 15 days or End of Trial within 90 days followed by End of Trial Report within 1 year to TASC R&D Office.
- You may be required to assist with and provide information in regard to audit and monitoring of study.

Please note you are required to adhere to the conditions, if not, NHS management approval may be withdrawn for the study.

NB Should you wish to conduct interviews 'face to face' on NHS Tayside sites, a Letter of Access will be required to be issued. Please ensure you request this by submitting your fully completed Research Passport and any other supporting documents required, to the R&D office here in NHS Tayside.

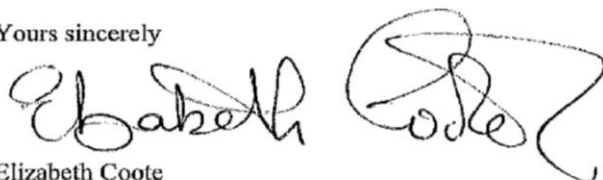
Approved Documents

Document	Version	Date
Confirmation of Sponsor insurance (to 31/07/2016)		31/07/2015
Participant Information Sheet (Appendix 3 + 8)		
Participant Consent Form (Appendix 4 + 9)		
Survey Debrief Sheet (Appendix 5 + 7)		
Survey (Appendix 6)		
Staff Interviewers' Topic Guide (Appendix 10)		
Interview Debrief Sheet (Appendix 10)		

May I take this opportunity to wish you every success with your project.

Please do not hesitate to contact TASC R&D Office should you require further assistance.

Yours sincerely



Elizabeth Coote
Head of Non-Commercial Research Services

TAsyde medical Science Centre (TASC)
Ninewells Hospital & Medical School
TASC Research & Development Office

Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY
Email: liz.coote@nhs.net
Tel: 01382 383876 Fax: 01382 740122

c.c. j.murray2@napier.ac.uk
margaret.marshall7@nhys.net
tascfeasibility.tayside@nhs.net

Bòrd SSN nan Eilean Siar
Western Isles NHS Board

Public Health Department

37 South Beach
Stornoway
Western Isles HS1 2BB
Telephone 01851 702997
Fax 01851 704405
<http://www.wihb.scot.nhs.uk>



Miss Kristie McClatchey
Research Student
Edinburgh Napier University
Sighthill Campus
Sighthill
Edinburgh EH11 4BN

Date: 22nd June 2016
Your Ref:
Our Ref: 113

Enquiries to: Martin Malcolm
Extension: 3055
Direct Line: 01851 708055
E-mail: martin.malcolm@nhs.net

Dear Miss McClatchey

Re. Management Approval for Non-Commercial Research

NHS Highland R&D ID: 1162

NRSOCC ID: NRS15/192975

Project title: Developing a clinically meaningful and feasible suicide risk assessment measure for use in Accident & Emergency Wards

I am pleased to tell you that on behalf of NHS Western Isles you now have Management Approval for the research project named above. This is based on the documents received from yourself and the relevant Approvals being in place. In particular I acknowledge that:

- The project is sponsored by Edinburgh Napier University.
- The project does not require external funding.
- Research Ethics approval for the project is not required.
- The project is Site-Specific Assessment exempt.

The following conditions apply:

- The responsibility for monitoring and auditing this project lies with Edinburgh Napier University.
- This study will be subject to ongoing monitoring for Research Governance purposes and may be audited to ensure compliance with the Research Governance Framework for Health and Community Care in Scotland (2006, 2nd Edition), however prior written notice of audit will be given.
- All amendments (minor or substantial) to the protocol or to the REC application should be copied to the R&D Lead NHS Western Isles with a copy of the corresponding approval letter.
- The paperwork concerning all incidents, adverse events and serious adverse events, thought to be attributable to participant's involvement in this project should be copied to the R&D Lead, NHS Western Isles.

Oifisean Bòrd na Slàinte
37 Mol a Deas, Steòrnabhagh, Eileanan Siar, HS1 2BB

Cathraiche: N. Mac a' Bhreatannaich
Ceannard an Gnlomh: G. MacSheumais

Headquarters
37 South Beach Street, Stornoway, Western Isles, HS1 2BB

Chair: Neil Galbraith
Chief Executive: Gordon Jamieson



Western Isles NHS Board is the common name of Western Isles Health Board

"The best at what we do"

NHS Western Isles will work actively with patients, the public and our partners to improve our community's health and wellbeing, to tackle inequalities, and to deliver high quality, reliable clinical services.



It is particularly important that you inform by email the R&D Lead in NHS Western Isles both when the study commences and terminates in the Western Isles together with details of monthly recruitment rates including dates of recruitment and participant trial ID numbers.

Please report the information detailed above, or any other changes in resources used, or staff involved in the project, to the Western Isles NHS, R&D Lead, Head of Public Health Intelligence & information Service, Martin Malcolm, (01851 708055), martin.malcolm@nhs.net and Frances Hines, NHS Highland R&D Manager, (01463 255822, frances.hines@nhs.net).

I wish you well with your study and look forward to seeing the findings once complete.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Martin Malcolm', written over a series of horizontal lines.

Martin Malcolm
(R&D Lead), Head of Public Health Intelligence & Information Services, NHS Western Isles

cc Frances Hines, NHS Highland Research Office, Room S101, The Centre for Health Science, Old Perth Road, Inverness, IV2 3JH
Pamela Shand, Senior Administrator, NHS Research Scotland CC, Research and Development Office, Foresterhill House Annexe, Foresterhill, Aberdeen, AB25 2ZB

PP No.

Suicide Risk Assessment in Accident & Emergency Departments in Scotland Survey

Thank you for taking the time to fill out this questionnaire. Please answer all the questions. Please also take an information sheet with the corresponding number at the top of this page, so that if you wish to withdraw your questionnaire from the study you may do so by contacting the email address and quoting the number. Thank you for your time.

1. Have you ever used a suicide risk assessment measure or tool in your workplace?

Yes No

2. Do you currently use any suicide risk assessment measures in your workplace?

Yes No

3. If you have used or currently use suicide risk assessment measures or tools within your workplace, was/is this:

	Yes	No	I don't know	N/A
A requirement in your workplace?				
Something you identified and decided to use yourself?				
A measure/tool found in the academic literature (e.g., scientific journals)?				
A measure/tool that has been created 'in house' or by you?				
Something that is reliable and validated?				

4. Please list any suicide risk assessment measures/tools that you use or have used within your workplace. If you have never used any suicide risk assessment measures/tools please write 'none' in the box below. If you do not know the name(s) of the measure(s) please write 'unknown' followed by a short description (this will help identification by the researchers, if possible).

--

5. If you **DO NOT** use any suicide risk assessment measures/tools in your workplace, please circle:

- I do not have time to complete more forms

Agree Disagree Not Applicable

- No one uses suicide risk assessment measurements so I don't either

Agree Disagree Not Applicable

- I have never thought of using a suicide risk assessment measure/tool before

Agree Disagree Not Applicable

- I have not been trained in using any suicide risk assessment tools

Agree Disagree Not Applicable

- I wouldn't know where to start using these

Agree Disagree Not Applicable

- I don't think that they can tell you what you need to know about the patients as an individual

Agree Disagree Not Applicable

- I don't think they are any better than clinical expertise

Agree Disagree Not Applicable

- I don't believe that suicide risk assessment measures can adequately inform patient care and management

Agree Disagree Not Applicable

6. If you have any other reasons for **NOT** using suicide risk assessment measures/tools please describe this in the box below

7. If you **DO** use any suicide risk assessment measures/tools in your workplace, please circle:

- I feel that they help me make decision about patients

Agree Disagree Not Applicable

- I am required to as part of my workplace policy

Agree Disagree Not Applicable

- I was trained to and have carried this on as part of my practice

Agree Disagree Not Applicable

- I don't really know why I just do

Agree Disagree Not Applicable

- My colleagues use suicide risk assessment measures/tools so I do too

Agree Disagree Not Applicable

- I feel that they will protect me if there is ever a disrupted case as I will have evidence to support my decision

Agree Disagree Not Applicable

- They help me get information from patients I may otherwise forget to ask

Agree Disagree Not Applicable

- I believe that suicide risk assessment measures help to inform patient care and management

Agree Disagree Not Applicable

8. If you have any other reasons FOR using suicide risk assessment measures/tools please describe this in the box below

9. Would you assess a child/adolescent differently to an adult?

Yes No

If Yes, what would you do differently (e.g. different tools, different risk factors)

10. On a scale of 1-10, with one being the least confident and 10 being the most confident, please tell us:

How confident are you when assessing a patient's risk of completing suicide using your judgement alone:

1 2 3 4 5 6 7 8 9 10

How confident are you when assessing a patient's risk of completing suicide using risk assessment measure/tool alone

1 2 3 4 5 6 7 8 9 10

How confident are you when assessing a patient's risk of completing suicide using a risk assessment measure/tool to inform your judgement

1 2 3 4 5 6 7 8 9 10

11. Please tell us, on a scale of 1-10 where 1 is total disagreement and 10 is total agreement, how much you agree or disagree with the following statements:

When assessing a patient's risk of suicide you should always use your clinical judgement

1 2 3 4 5 6 7 8 9 10

When assessing a patient's risk of suicide you should always use a risk assessment measure/tool

1 2 3 4 5 6 7 8 9 10

When assessing a patient's risk of suicide, a risk assessment measure/tool should always be used to inform clinical judgement

1 2 3 4 5 6 7 8 9 10

Suicide risk assessment measures/tools are of no value within my practice

1 2 3 4 5 6 7 8 9 10

Clinical judgement when used alone to assess suicide risk is of no value within my practice

1 2 3 4 5 6 7 8 9 10

12. There are factors that have been identified in the literature that increase the 'risk' of suicide. Please indicate which of the risk factors presented below YOU believe are most important when assessing the risk of suicide, using a scale of 1-10, where 1 represents a risk factor that is of no importance and 10 represents a risk factor that is of the greatest importance:

mental ill health

1 2 3 4 5 6 7 8 9 10

self harm

1 2 3 4 5 6 7 8 9 10

alcohol misuse

1 2 3 4 5 6 7 8 9 10

drug misuse

1 2 3 4 5 6 7 8 9 10

chronic illness

1 2 3 4 5 6 7 8 9 10

personality

1 2 3 4 5 6 7 8 9 10

genetic pre-disposition

1 2 3 4 5 6 7 8 9 10

biological phases (e.g., pregnancy, ovulation cycle)

1 2 3 4 5 6 7 8 9 10

work and unemployment

1 2 3 4 5 6 7 8 9 10

poverty

1 2 3 4 5 6 7 8 9 10

13. Please type any other risk factors that you feel are important but that were not in the list above in the box below.

Finally: Are you: Male Female

What is your profession?

What region do you currently work in? (e.g., Greater Glasgow and Clyde, Ayrshire & Arran)

Suicide Risk Assessment Study: Staff Interviews' Topic Guide

- 1) Please tell me about your role/your employment
 - i. Prompt: What kind of tasks you are involved in on a day to day basis

- 2) Tell me a bit about your experience of suicide risk assessment
 - a. Have you had any formal training
 - i. If yes – what, tell me more, what did you feel about the training
 - ii. If no, why not, have you ever had the opportunity → follow participant's line of conversation

- 3) What are your feelings towards 'formal' methods of suicide risk assessment (provide example if required)

- 4) What are your feelings about less formal methods of assessing the risk of suicide, so by using clinical experience and expertise (provide example if required)

- 5) What is your usual method of assessing suicide risk?
 - a. Is this your choice/preferred method? Why/why not?
 - b. Is this an employment requirement? If yes, how do you feel about it? If no, would you prefer more regulations?

- 6) Do you feel that there is enough training in suicide risk assessment at present?
 - a. Why/Why not?
 - b. How could this be improved?

- 7) In your own opinions, what are the most important considerations when assessing the risk of suicide?
 - a. What do you look for?
 - b. Risk factors?
 - c. Protective factors?

- 8) If there was an 'ideal' risk assessment tool/measure to help you in your practice, what would it look like/contain?
 - a. Why?
 - b. Prompt to expand on interesting/important points

- 9) Is there anything else that you feel would be important to tell me that we have not yet covered?

PP No.

Suicide Risk Assessment Interview: Participant Information Sheet

My name is Kirstie McClatchey and I am a PhD student within the School of Life, Sport and Social Sciences at Edinburgh Napier University. Thank you for taking the time to participate in my research. This study seeks to understand the ways that people assess the risk of suicide in their patients and clients. The study is concerned with professional practice only, and as such I am looking to recruit health care workers aged over 18 years who work in Accident and Emergency (A&E) departments where clients or patients are at risk of suicide or where suicide risk assessment is part of your routine practice.

At present almost nothing is known about the scale of variation across services, practices and different professions when it comes to assessing someone's risk of suicide. You took part in an questionnaire based 'mapping' study for me previously and indicated that you may be interested in participating in a follow up interview to discuss your responses and the topic of suicide risk assessment further. Thank you for your interest. If at any point during this interview you feel that you have changed your mind and do not want to take part any more please let me know and we will stop the interview session. You don't need to give a reason for this. If you wish to withdraw your interview from the study at any time after the interview, you may do so by quoting the number at the top of this page. The findings from the study will be used to inform the development of a larger research project, which aims to develop potentially useful suicide risk assessment tools which will be feasible for use in busy professional practice. The interviews will allow me to understand in greater depth the real-world challenges that are faced by people carrying out suicide risk assessments, and hopefully what would help most in practice.

If you would like to participate in the study, you will be asked to take part in a one-to-one interview with me to talk about the topic of suicide risk assessment. The interview will be focused on your practice/work – not on any specific experiences or cases of suicidal behaviour that you may have experienced. There is the chance that you may become emotional during the interview and of course we can stop talking at any point or take a break if you need to. The interview will last no longer than one hour.

It will not be possible for you to be identified in any reporting of the data gathered as no identifying information is asked for. All data collected will be kept in a secure place (on a password protected account on my personal computer within a lockable office). Only I will have access to the data, which will be kept for ten years, in line with information governance procedures and will be destroyed in 2026. This research is being funded by Edinburgh Napier University. The results may be published in a journal or presented at an academic conference. However, all published or presented findings will be reported as grouped data and you will not be identifiable.

If you would like to contact an independent person who knows about this project but is not involved in it you are welcome to contact Dr Kathy Charles (k.charles@napier.ac.uk), who is a senior lecturer at Edinburgh Napier University.

If you have any questions please email me at 40186601@live.napier.ac.uk and I will reply as soon as I can.

PP No.

**Suicide Risk Assessment Interview:
Participant Consent Form**

Please tick:

- I have read and understood the information sheet and this consent form. I have had an opportunity to ask questions about my participation.
- I understand that I am under no obligation to take part in this study.
- I understand that I have the right to withdraw from this study at any stage without giving any reason.
-

I agree to participate in this study.

Signature of participant: _____

Signature of researcher: _____

Date: _____

Contact details of the researcher:

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**Suicide Risk Assessment in Emergency Departments in Scotland:
Interview Debrief Sheet**

Thank you for taking the time to take part in this study. The study aims to identify what suicide risk assessment measures/tools are currently being used in practices across Scotland. It is also interested in finding out why people choose to use particular suicide risk assessment measures/tools and why they don't use others (or any if that is the case). We know anecdotally that many clinicians across various types of practices and professions rely on their clinical judgment alone when making judgments and decisions about a suicidal patient. We also know from recent NICE guidelines that there are no specific risk assessment measures/tools that have been recommended as 'gold standard' - this is largely due to the wide variation in practice and the very small amount of research that has been carried out on the topic to date. The study's key aim is therefore to identify:

- 1) The scale of variation across practices and professions in terms of the suicide risk assessment measures/tools used
- 2) The scale of variation across practices and professions in terms of clinician reliance on clinical judgment to help them make decisions about suicidal patients.
- 3) The extent to which professionals working with suicidal patients believe suicide risk assessment measures/tools may be useful (or not) in their practice.
- 4) The experience that clinicians have while assessing the risk of suicide

To our best knowledge, this is the first UK based descriptive study that is looking only to identify this key 'baseline' information. We hope to use this study to shape our future research and ultimately add to the literature in the area of suicide risk assessment in a way that will not only be interesting to academics but hopefully useful to those in practice. If you feel affected by suicide or feel the need to talk to someone please contact a friend or trusted individual, or phone the Samaritans on 08457 90 90 90 or Breathing Space on 0800 83 85 87. If you would like to learn more about suicide prevention work that is happening in Scotland please see the Choose Life website:

<http://www.suicideprevention.org.uk>

I would like to thank you once again for your participation and welcome any questions or comments - please get in touch via the contact details below:

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1 **Participant 1 Interview 31/08/16**

2 **Would you be able to tell me about your job role:**

3 I am a Specialty doctor in the emergency department at XXXX [hospital] at XXXX [NHS
4 Board]

5 **How long have you worked in emergency departments in your career?:**

6 Two years.

7 **Could you please tell me a bit about your experience so far of suicide risk
8 assessment in the ED:**

9 Well, there is a combination of approaches. The nursing staff sometimes see patients
10 and refer them directly and they always use a set proforma that we have. The medical
11 staff don't necessarily always use the form, for a number of reasons. What that would
12 normally means is that the nurses are kind of pre-triaging assessment of patients and
13 doctors are kind of left to decide whether it is more appropriate to use these forms or to
14 kind of go freestyle with it.

15 **Where you work, will the nurses always triage first?**

16 Always triage first.

17 **And they prefer using the tools?**

18 Yeah, there is a form that has got one side that's used 'Have you seen the form?' (I have
19 seen lots of different local form, I can't remember off the top of my head) Well, essentially
20 there is one side that the nursing staff fill in and one side that's got very limited space for
21 writing your psychiatric assessment on the other side for the medical staff.

22 **Have the doctors and nurse been trained to use this particular form, or is it just
23 something they are given?**

24 I know that is something that happens when induction happens you get kind of introduced
25 to the form and shown that these forms exist and there is a teaching session – I think
26 probably from one of the CPN's or one of the local suicide campaigning people comes
27 to speak to you when you first start. So there is some kind of policy about buses in XXXX
28 [NHS Board location] - do you know anything about this? (**About buses sorry?**) Yeah –
29 essentially bus drivers and things are being trained to make interventions (**Oh yes, taxi
30 drivers as well.**) Yeah, yeah, yeah, yeah – well there was all of that stuff happening – I
31 have forgotten what I was saying – (**about the training**) oh yes, so they came and talked
32 to us about all those kind of programs and things as well so we're given these forms told

1 **So if it was brought into policy that X tool had to be used – that is something you**
2 **wouldn't be happy with, based on having to do that for every patient?**

3 Yeah, absolutely. I've just walked into the A&E department and I've just broken up with
4 my boyfriend and I've had four glasses of wine and I'm 'tiddily', and I tell the nurse at the
5 front door that I am suicidal that's not somebody that needs to same psychiatric
6 assessment as a patient with long standing depression – and I think using the same tool
7 for those things is insulting to the patient with the kind of longstanding in inverted commas
8 significant mental health problems, documented mental health problems – rather than
9 25 different triggers for why they are feeling crap.

10 **Do you feel that there is enough training in suicide risk assessment at present?**

11 Yes, it's not complex. Nobody trains you about how – what the kind of evidence behind
12 the form is – I suspect there isn't any. Yeah I suspect there is no evidence behind it, erm
13 and that annoys me. I am quite happy to use something if there is some evidence behind
14 it and it is actually contributing something. But a lot of it is just a box ticking exercise and
15 an 'ass covering' exercise at the same time. It's me trying to make sure that, if for some
16 reason I got it wrong on that day, I've still done the correct paper work and there is no
17 criticism of me not having complied with, or not having stuck to the guidelines. As it's
18 guidelines very much rather than rules.

19 **Do you feel that is applicable to all members of staff, or do you feel some people**
20 **may prefer more training?**

21 I don't really know. I think this is an experience thing. I don't think filling in the form is
22 complicated. Erm, I think that making a decision at the end of ticking those boxes, which
23 are not scored is, is something that perhaps people can do with guidance with. I think it
24 is something that with lots of things, is something you learn over time.

25 **In your own opinions, what are the most important considerations when assessing**
26 **the risk of suicide?**

27 I am much more interested in how the patient interacts with me and how they have come
28 to be there – then necessarily anything else – are these patients who have self-
29 presented? Are these patients who have been brought there by the police? I think these
30 things start to influence my opinion of them, and their psychiatric history is the next thing
31 I am most interested in. And again, in the form that we have, I think I have got about an
32 inch worth of space to write about their psychiatric history. Which is pointless, you know.
33 This is part of my issue with using the form – it's not practical. Substance use is
34 something I think is very important. There is difference between drinking a couple of

1 glasses of wine to cope with life and drinking – I don't know, 6 liters of vodka a week.
2 And it's about the change in that behaviour, rather than the absolute behaviour. So for
3 me, suddenly starting to drink a bottle of wine everyday would be cataclysmic – I'm tee
4 total, so that would be a massive different change in my life. Whereas, if I am someone
5 who is alcohol dependent, continuing to drink the way I always have done would be less
6 significan

1 **Participant 2 Interview 07/09/16**

2 **Would you be able to tell me about your job role in the hospital:**

3 Yep, so I am a consultant in Emergency Medicine in a hospital that is a district general
4 hospital.

5 **How long have you worked here?:**

6 I have worked in this health board since 2010.

7 **What is your experience so far of suicide risk assessment in the ED:**

8 As it currently stands?

9 **Yeah?**

10 As it currently stands it's – there is no kind of standardized score or risk tool so it is very
11 much based on an individual clinical assessment.

12 **Have you had any formal training with regard to suicide risk assessment?**

13 So er, I have attended education sessions and our psychiatry department runs training
14 here. I have attended safeTALK.

15 **What are your feelings towards more 'formal' methods of risk assessment?:**

16 Yes – it's a very attractive idea – so long as the evidence base for the tool is robust. It
17 kind of depends what you are going to use the tool for, if the tool is kind of a reminder to
18 remind you to do a thorough assessment and to ask the right things then that is probably
19 inherently a good thing. If you are talking about actually doing one of these assessments
20 and then getting a score or a number and that number determining what you are going
21 to do then you would need to have a very high level of confidence that that tool would
22 have been well developed, well tested, validated externally from where it was developed,
23 all of those type of things.

24 **What are your feelings about less formal methods, just by using clinical
25 experience and expertise?**

26 Yeah, in the absence of a good robust, validated tool, that is probably the best thing we
27 have got, but it is very dependent on the individual and their level of experience.

28 **In your practice do you tend to use mainly tools or clinical judgement?**

29 Yeah, mostly clinical judgement. I mean when I started training in emergency medicine
30 there was a tool called SAD Persons that was very popular but it's been fairly well

1 'doshed' now. Discredited is probably a better word, as a standalone tool anyway. And I
2 found using something like SAD Persons can be very clunky in that I mean a psychiatric
3 assessment is you know a conversation and it's a two-way thing, and if your just sitting
4 there as a doctor working through a checklist of questions you're not building up much
5 of a rapport. I didn't find that a terribly helpful thing, so when SAD Persons kind of went
6 out of fashion I didn't regret that to be honest. So I just know prefer an individual clinical
7 judgement, which will be based on you know – how the person appears, the rapport that
8 you get during the interview, if you feel they are engaged or withdrawn, whether they
9 appear subjectively or objectively depressed, if they appear confused, future planning,
10 you know the context of the event that might have happened that day – if there's already
11 been an event/an attempt at self-harm that might tell you the context of that. You know,
12 those types of factors.

13

1 **So you would know that just from asking ‘what they do’?**

2 Yeah, what you do is you go in, take history, find out what happened, then you would
3 find out about their past medical history, their past psychiatric history, the potential trigger
4 factors, and as you’re doing that you’re judging their mental state. So you know – you
5 might as you go along or specially test if they orientated fully. Do they appear depressed,
6 do they feel depressed, is there any evidence of perceptual hallucinations, delusions,
7 you know major psychiatric illness, and then you know co-existing substance misuse or
8 whatever. You are trying to get all of that really.

9 **Just from a conversation...-**

10 Yeah, so this is the difficulty is that erm you know to do all that even if you are quite fluid
11 at it, you know that will easily take me 15, 20 minutes by the time you get someone
12 warmed up and get them talking or whatever and if the psychiatrists come with their
13 booklet they will take an hour. So one of my hesitations about moving over you know
14 handing over relatively inexperienced people a tool and saying ‘go and use that’ is that
15 – so you go in and spend 3 or 4 minutes asking and the end of that you get a number,
16 you know if that was the model of the assessment for example then, you would need to
17 be quite convinced that doing something that rapid could replace what is actually quite a
18 difficult thing and at the moment takes quite a lot of time. It would be great if it did, but
19 you would have to be convinced.

20 **[with reference to newer clinicians] do you think it is something that develops over**
21 **time – when assessing for risk are they quite nervous and maybe don’t get that**
22 **15/20 minute conversation?**

23 Yeah, I mean, I hope you get better at it, certainly at the start it’s one thing I remember
24 feeling, when I first started doing this type of work, feeling it was really quite difficult. And
25 even you know learned bodies, I mean not just me but, you know I remember reading a
26 Royal College Psychiatrist Guideline where they said that sending relatively junior people
27 who were psychiatrists to come and do this work they found difficult, and that was people
28 who were working just in psychiatry – all the time. And they were saying for those people
29 this is quite difficult. So for ED staff who do this, and then people who are injured, people
30 who are unwell, children, adults, the whole difficult thing – you could argue it’s likely to
31 be even more difficult..

1 **Participant 3 Interview 13/09/16**

2 **Would you be able to tell me about your job role:**

3 At the moment I am currently doing Locum through agencies, but when I filled out the
4 form I was based in XXXX [NHS Board] and that was as a ST1 erm kind of locum
5 appointed for service post. So prior to that I had completed my FY training, but it was my
6 first post in A&E so I was kind of new to everything that you come across in A&E.

7 **How long were you working there for?:**

8 I was working there for eight months. From December to August, finishing in August this
9 year.

10 **Could you please tell me a bit about your experience so far of suicide risk
11 assessment in the ED, had you had formal training –**

12 Not really, I mean going back to medical school, because before then, well I had a post
13 in GP in FY2 and you obviously come across depression and people and sometime you
14 need to assess the risk of suicide that's not erm, if it's more of an acute presentation, so
15 I had have a little bit experience but obviously in a community setting rather than A&E.
16 But prior to starting to work in A&E I wouldn't say I had a huge amount of experience in
17 assessing someone for suicide risk.

18 **While you were working in the ED were there any training sessions available?**

19 Not that I can remember, it was more on kind of a case by case basis, my senior was
20 available for me to go and speak to them about people I came across. Erm so it was
21 more kind of on the job learning rather than sessions beforehand.

22 **In terms of training, or lack of, do you think this could be improved?**

23 Yeah, I think definitely, it's something that I came across so frequently, erm within A&E,
24 erm, and some cases are clear cut, but others – the majority seem to land in this grey
25 area, erm middle, and I wasn't comfortable with erm, it wasn't something I was confident
26 with and there seems to be lots of different kind of advice from different people. Like, it
27 seems to be very much like what their experience is and what they find works best.
28 Rather than kind of a set protocol if you know what I mean? Erm, and I guess that is
29 because it's so variable and erm you really need to take it on a case by case basis, but
30 at the same time as a junior that's quite a difficult thing to do when you don't have that
31 experience behind you. So, I would say that the majority of the time, the way that affected
32 my practice, that I was much more likely to refer, erm someone for psychiatric

1 assessment than to discharge them off my own back, and if I were to discharge them it
2 would always be after discussing it with a senior. Erm, unless it was an absolutely clear
3 cut – erm this person you know regrets their actions and has a loving family, and
4 someone is going to home to a safe environment, erm but a lot of the time that isn't the
5 case. So, I spent a lot of time going to people and asking their advice, and if I wasn't
6 happy I would get them to come and see the person, or I would be referring them to
7 psychiatry to get them assessed by the specialty team.

8 **You mentioned [suicide risk assessment] it is frequently, how frequently do you**
9 **mean?**

10 Erm, so if you are on night shift, or are working at the weekend I would say you could
11 quite often see like, I don't know, even as many as like four to five people, erm that's like
12 obviously – it's spread amongst you, so there is like four on night shift [staff] at the
13 weekend. Erm, but you wouldn't go through a night shift without having someone coming
14 in that would need to be assessed. At the weekend I would be – I don't know – doubled
15 or tripled in terms like of how many people you would see. Erm, but it is a daily
16 occurrence, it's a very common presentation in A&E in my experience where someone's
17 coming in and there are family members that are concerned, or they have been found
18 trying to hang themselves, or the police have brought them in because they've called for
19 help, and that tends to be the way it goes. They will call NHS 24, and NHS 24 will get
20 the police to go round and take them into hospital.

1 **In your own opinions, what are the most important considerations when assessing**
2 **the risk of suicide?**

3 Unemployed, if they're male, erm if they have attempted suicide before coming in, or you
4 know self-harm, and what they did, so if they were trying to hang themselves, again that's
5 a big sign that this is a serious attempt. You know the difficulty is that you have so many
6 people coming in, with deliberate self-harm that erm that their intention was never to kill
7 themselves, it was, that was their kind of coping mechanism. So, like cutting, yeah the
8 majority of it is cutting because it's deliberate self-harm, erm but as they are also a high
9 risk group so it's quite easy to become a bit, erm you know they've been in, this is their
10 sixth attendance in the last six months or whatever, erm their coming in with deliberate
11 self-harm again, they're regretful of their actions, erm they've got a community care plan
12 in place, they will be fine to go home. Erm, but obviously one day they may well have a
13 serious attempt if you know what I mean. When you look at the wounds there is a very
14 big difference between superficial cutting and a serious deep attempt to try and get to
15 the vessels. Erm, so if someone was to have kind of a deep wound that looked certainly
16 like they were having to use quite a lot of force to do it then that would ring alarm bells,
17 compared to superficial wounds when examining them. And then, I guess the rest is just
18 a bit more ambiguous kind of talking to them and seeing, how they if they're reactive, if
19 they make eye contact, if they're able to open up, if they are regretful of their actions, if
20 they had a reason for doing it and if things, if things are a bit catastrophic, you know
21 messy at home, like a relationship breakdown, or erm alcohol involved things like that.
22 Again, it kind of muddies the picture, but I'd be more inclined, if the home environment
23 is chaotic, I'd be more inclined to erm refer to psychiatry because they often won't have
24 that support at home..

1 **Participant 4 Interview 24/10/2016**2 **In terms of the Dictaphone, could you tell me about your proper role?**

3 So, I am one of the emergency medicine consultants at XXXX [hospital] in XXXX [NHS
4 Board] so its XXXX [hospital] and XXXX [hospital], one of 15 consultants we emm, to
5 cover, we cover the department from 8 in the morning to 2 in the morning on short floor,
6 and then a period overnight where sometimes there is a consultant but majority of the
7 time we have a senior trainee here. So more or less, you know full cover of the
8 emergency department for Tayside.

9 **Yeah, and how long have you worked in this hospital?**

10 For 11 years.

11 **Oh wow, emm, ok so, with regards to your role what is your experience in the past
12 of suicide risk assessment?**

13 So probably worked in the emergency departments for a period of about 15 years, emm
14 perhaps longer 16 years, and during that time obviously you gain your first experience
15 as I've seen people with emm self-harm and other sorts of obvious risk of suicide
16 presentation which would be consistent with that, you know, properly 16 years ago I
17 maybe saw my first patient like that and I still emm, are more or less daily assessment
18 that we have to make during... **daily?** Yeah, so I would say most days that you are on
19 clinical duty you have to make some form of assessment of somebody who is at risk of
20 suicide, **yeah and...** in this hospital we have, we got an emergency requirement which
21 everyone would recognize as an emergency department but we also have an XXXX [Unit
22 in hospital] where we look after all of our poisonings so you can imagine ahh, I've got
23 most morning there will be patients in there who have presented the previous day with
24 self-poisoning. **Oh right.** And required observation overnight.

25 **Yeah... And how many patients roughly a day on average do you think you have...**26 Well I think as department we probably, you know, an average day we probably got 3 or
27 4.28 **And does that change over 16 years or is that quite consistent?**

29 In Tayside our ED is slightly peculiar in that our number of patients presenting have been
30 generally pretty static so we don't, we have not seen the year on year increase that other
31 places have.

32

1 **Yeah, emm do you feel that there is enough training for suicide risk assessment,**
2 **whether that be during the medical training or ongoing as well.**

3 Well I don't know I think, it's difficult because I've been doing emergency medicine for a
4 long time. In post graduate emergency medicine training you do have to learn the suicide
5 risk assessment tools, and you can be assessed on your ability to risk assess, emm
6 psychiatric patients, self-harm, emm acute mental illness, and all that kind of thing. So I
7 think that whether an individual training programme has enough training in it I'm not sure,
8 you know, you couldn't answer. But certainly there is a there is a burden of assessment
9 so all trainees in emergency, it is in the curriculum. They have to learn the stuff and they
10 can be assessed on it prior to getting their certificate. So I think that its there, for the
11 postgraduate training in emergency training, it think on a more general scale
12 undergraduate level I am not sure. **Yeah, ok.** I don't know what everyone is being taught.

13 **In terms of ongoing training while you were a practitioner, is that something that**
14 **is done here or...**

15 Everyone has their CPD that they have to do but emm suicide risk assessment or
16 assessment of deliberate self-harm or mental illness or things, is not one of the
17 compulsory training modules, you know, is not like blood transfusion guidance or
18 something like that, which are compulsive throughout your career to maintain your
19 [currency], is not like that, so everyone has to do a certain way CPD and, I guess is up
20 to you whether that is part of your CPD.

21 **Yeah, do you get outside sort of organizations, charities, and things coming in...**
22 **Not here no. Ok.**

23 But I have been to meetings, national meetings, where there has been a heavy slant
24 towards emm, self-harm, suicide risk assessment, and that kind of thing that has been
25 held by the college of emergency medicine, so it is something that people are aware of
26 and which comes in to our usual CPD programme. So just like it is on the curriculum for
27 postgraduate training, it is also, it stays on the curriculum for CPD and things as well.

28 **Yeah, just not a compulsory component.** But is not a compulsory, yeah.

1 **Yeah, and in terms of assessing an adolescent would the threshold be much**
2 **lower...**

3 I think that... yes, and I suspect that the percentage of them that would be referred would
4 be very very close to 100%, if not 100% you know, I think the ones who maybe wouldn't
5 be are perhaps, should come from an environment where they are already being looked
6 after by people who perhaps come from a unit, a young person's unit, where they have
7 people with behavioural problems or offenders, where they have key workers and
8 mental, CAMHS professionals in the facility, and your role may be simply to deal with the
9 injury or the emm poisoning, or whatever it is that they needed to come to the emergency
10 department for, but not perhaps the behavioural or mental health aspects of things,
11 because that has already been taken by someone else. I mean I would say it would be
12 90 or 100% with the young folks.

13 **And what would it be with the adult population in terms of admitting?**

14 I think that is difficult, I mean I...(laughing) I would say it's close to 100% for those that
15 need it, but you would have that group which I've said that would filter out. Perhaps the
16 recreational, recreational drug users who come in as overdose, but, when you get into it,
17 it's actually recreational, perhaps they wouldn't get a full mental health assessment
18 although they may need a substance abuse approach to things. And the habitual cutters
19 who, one might say that, not the ones that I decide are habitual, but it is clear they are
20 habitual, there is a history, there is a documented history, there is physical evidence,
21 patients telling you that that is the case, and this situation that results within them taking
22 that action is now past sometimes as a result of taking the action, that's sometimes what
23 the benefit, that they are seeking to gain from it doing it. If the heat has gone out of the
24 situation and they don't need a referral and then, they have maybe a key worker or
25 somebody that they can contact the next day, or whatever, I think that is fine. But, so, I
26 couldn't give you a percentage but I'd say it's very high, the number of people who get a
27 formal mental health assessment. And those who probably, I suspect, most of us would
28 document why they weren't getting it, or what the situation was, who they were going to
29 see, you know, for instance. Have, you know, have... emm CPN phone number, and
30 phone them tomorrow or something like that, you know..

1 **Participant 5 Interview 27/10/2016**

2 **What is your current role at the moment?**

3 So, I am a consultant in emergency medicine, at XXXX [hospital].

4 **And how long have you been based here.**

5 So in XXXX [NHS Board] for about 14 years, as a consultant here 2 years.

6 **Right ok, and what is your experience of assessing for suicide risk in the**
7 **emergency department?**

8 So on... every shift I would have to assess at least 1 person who has presented through
9 mental health, predominately through self-harm or possibility of suicide through a variety
10 of presentation options. Whether it be self-presenters, relatives, addiction workers, or
11 police.

12 **Ok, and have you had or do you get any formal ongoing training**

13 So for emergency medicine there is limited mental health input or training for the
14 spectrum of mental illness, and as for assessment of suicide risk there is probably little
15 to no training other than, emm, what has been put forward is the SAD Persons score.
16 **Right ok.** But has been concerned recently that it is not a validated tool. **Yeah, is that**
17 **something that is being used to...** Not particularly, we generally do an assessment
18 and probably refer most people on floor, further assessment to the either the liaison
19 psychiatry during the day, or after that our CPN services out of hours.

20 **What are your feeling towards using formal methods of assessment for risks of**
21 **suicide**

22 So my personal concern is that whilst guidelines, protocols, etc. are helpful they should
23 not replace clinical decision making, emm, and there is a... great need for recognition of
24 a clinicians' experience, training, and also knowledge of the patient is paramount in
25 making a valid assessment, and we have to understand that none of us can predict the
26 future, and that no tool will ever be 100% reliable, which is sad and unfortunate but we
27 mustn't, I think it would be unreasonable to expect that any tool would function perfectly
28 because often there are multiple factors involved in someone presenting.

29 **And, you said briefly said about clinical judgement, so what are your feelings**
30 **about using your clinical judgement alone?**

31 I would not expect junior clinicians to be making this kind of assessment unsupported
32 and on their own, for several reasons, one being the lack of clinical experience, a lack of

1 probably appreciation of the multiple factors involved in the someone presenting with
2 suicidality behaviour, and the lack of information as well, so as I'm sure you are aware
3 mental health records are often kept separate from the general medical records, and not
4 everyone has access to those. There is also a lack of appreciation, a lack of
5 understanding and knowledge of services and community based services, that are out
6 there available to emergency medicine clinicians, and that's often why we have to refer
7 to mental health because they are aware of what is actually out there and what services
8 the person is linked to.

9 **With regards to what you said about more junior doctors, and you would support**
10 **them is that something that you find that perhaps needing more guidance on**
11 **this...**

12 It's a huge topic, and eh, especially because particularly maybe for emergency medicine
13 we have a wide range of junior doctors, someone to do surgical careers, someone to do
14 medical careers so then it spears an interest in mental health is probably quite low, emm
15 even some senior clinicians have very little interest in it as well. Or experience or training
16 in it. I personally have an interest so I'm probably more enthusiastic towards seeing this
17 cases and find out more what is out there, but there is certainly a need for heighten
18 awareness in medical staff, junior medical staff.

19 **Do you feel that there is enough training?**

20 I think, there is probably a not, some of the training is seen as a box ticking exercise and
21 that is not right. That is not training, that is simply, you know, saying that the doctors
22 have completed maybe suicide awareness training that is not effective, in my personal
23 opinion. But that goes for any sort of mandatory training. **Is that, do people have to**
24 **attend?** Well they don't have to, but the trust have to have a certain percentage of people
25 who are suicide awareness trained. But not every doctor has to be. Probably in their
26 medical school training they have to do a psychiatric block, but what they take away from
27 that can be variable as in with any other specialty placement. And, I feel that, yes, so
28 mandatory training probably isn't the solution, current options are limited, and there is no
29 one package that fits all, certainly for our present population presentation is often out of
30 hours, its complicated by multiple factors such as social crisis, substance misuse, alcohol
31 intoxication is massive, and a perceived lack of support mechanism and poor social care
32 skills, and to have experience in all that as a junior doctor in a device is impossible is
33 only through experience that you get that.

34

1 was this sort of this legal highs when they were being available as well, we saw a real
2 elevation in the population of people trying drugs because they were available to buy.
3 **Yeah, legal.** Yeah, and presenting with abnormal behaviours through that. Fascinating
4 subject but a little off topic... **Yeah, little bit, but... in terms of suicidal risk**
5 **assessment is there anything else you would want to...** I can't think of anything; I
6 think that pretty much covered it. Emm, but emm anything would be better, that's more
7 validated would be help, but again the suicide risk tool must be valid for the settings that
8 it is used in. So we would have to have a probably different tool to a community mental
9 health team because we would have different population demographics presenting to us
10 compared to community mental health team. **Yeah, that's what I want to look at, I think**
11 **so far people are using tools that have been validated in mental health settings...**
12 Yeah absolutely yeah and I think that is something that is definitely, for emergency
13 settings, we would need to look at.

1 **Participant 6 Interview 01/11/16 Telephone**

2 **Tell me about your current role.**

3 I'm a Consultant in Emergency Medicine in XXXX [NHS Board].

4 **How long have you been working there for?**

5 In XXXX [NHS Board] well, Consultant grade for erm just under two years, and I have
6 been in XXXX [hospital] for I think nine years in A&E.

7 **Could you tell me a bit about your experience of suicide risk assessment?**

8 Erm, that's quite an open question. I guess erm we often see it quite frequently, erm
9 most, all A&E departments will see suicidal risk patients, and all dealt with, in my
10 experience, roughly the same way in most departments. In terms of initial assessment
11 it's done by – give me a second sorry – so the initial assessment is done by the triage
12 nurse, erm and we use a proforma in our department, which I have seen in other
13 departments as well, which is kind of a very coarse risk assessment as to – I think it's
14 main purpose is if the patient absconds before they get seen, so they've got a risk, a
15 basic risk assessment done, so if they leave if we should be calling the police and pulling
16 out all the stops to return them to the department. It gives us a rough idea if we think its
17 detainable under the Mental Health Act for further assessment erm, and that is a very
18 brief assessment of major risk factors such as erm if they are showing any psychotic
19 symptoms, if they had [inaudible] means, if they are withdrawn and we think they are
20 high risk vs someone who for example puts something on Facebook that's probably more
21 a cry for help and perhaps probably low risk, and it gives us sort of an idea.

22 After the triage nurses have done their assessment, then they wait and get seen by the
23 first available doctor and they do a bit of long in-depth assessment, and that is more to
24 see if we think that they need a further assessment which would be more in-depth which
25 is approximately one hour and that's usually done by the psychiatry team, and that in our
26 area is predominantly done by two Community Psychiatric Nurses who cover the city in
27 pairs, usually two or three pairs and one overnight and they respond to the local
28 departments erm and perform a more detailed assessment, which if they are very
29 concerned, they bring them for a forth assessment which is usually done by transfer to
30 a psychiatry hospital for voluntary or involuntary admission, where they would be, have
31 a [inaudible] essentially by the duty doctor.

32

33

1 **What are your feelings towards formal methods? Tool or proforma.**

2 I think for just a brief triage assessment it's fine, because obviously a brief triage
3 assessment tools for any condition not just psychiatric need to be brief, effective, and
4 they are more just to point in the direction of what actions are required for the patient and
5 if it becomes too complex that defeats the purpose of triage, because you are basically
6 just doing the full consultation with everybody, and there would be a queue at the door
7 for as long as the street goes. So that's fine for triage purposes. We also use that same
8 proforma though that the triage nurse fills in and has a slightly more detailed bit which
9 the doctor fills in down below erm and it's essentially a promptive format of the risk factors
10 you want to clarify and a brief mental state examination but less detail than I would expect
11 from a psychiatric team. Erm, I think it serves its purposes to some degree, but I am not
12 aware of any evidence base behind it. I know there is much more, there is multiple
13 various suicide risk assessments that have been developed over the years, but the one
14 we use currently is a coarse tool. Erm and it really just informs the basis of taking a brief
15 consultation and only in a minority of cases would we not then see to a full psychiatric
16 evaluation by the psychiatric team, erm because most people will score something on it
17 erm so I don't think it's very effective in some ways because most people who are
18 assessed by it still then get sent to the psychiatric team one they are clear from the
19 overdose point of view for example. Erm but the majority of the patients are seen by the
20 psychiatric nurses who do a more detailed assessment are discharged from A&E with
21 follow-up by either the community mental health teams or the GP or none at all. So it
22 suggests it's over triaging patients.

23 **What are your feelings of using clinical experience/judgement?**

24 Erm, they work fine most of the time but if they don't and a patient absconds or commits
25 suicide you don't anything that would erm defend you if you like. Its quite a defensive
26 approach, but erm I had one fatality unfortunately where erm the assessment was done
27 I think appropriately by one of our experienced charge nurses senior nurses in the
28 department and the patient did unfortunately kill themselves, erm but because there
29 wasn't any sort of written assessment tool other than the triage notes it was criticised
30 quite heavily. So I think it works fine because all these triage tools they erm also
31 vulnerable to erm not being effective and people still absconding and killing themselves,
32 which would be the worst case scenario but erm at least you can say we used a tool
33 that's been agreed between services. So from a management point of view its perhaps
34 not acceptable, from a risk point of view, to have an informal conversation or personal

1 experience, it should be backed up with some sort of written assessment which is
2 probably the happy medium.

3 **And that's what you do in your service anyway.**

4 In our service, in the current department I work in, all patients get the proforma written
5 by the triage nurse and then completed by the doctors seeing the patient.

6 **Does it put you at ease to say we have got the evidence to say we did this?**

7 Well ultimately I think none of these patients who are seen by us get a full evaluation,
8 and what we are doing is a basic risk assessment. I am not sure that the forms are that
9 helpful because pretty much everybody that we use them on ends up, particularly by
10 junior member of team, junior medical staff like a foundation level or GP training staff or
11 even a year or two from medical school, if the department is busy people are on the side
12 of caution [inaudible] well is there any point of doing this tool in the first place because
13 we are probably going to refer most of these patients anyway. But I guess it serves as a
14 prompt, and we use lots of these in medicine, you know it helps you obtain a full, more
15 complete history, it helps remind you what things to ask, erm and it helps to remind you
16 to do a more complete risk evaluation, and if anybody scores zero on risk evaluation then
17 it can be discussed with a senior doctor about are they fit for discharge, about waiting to
18 see a psychiatric team erm of which a small minority are. Its not useless, they are risk
19 assessment, but their evidence base I am not familiar with.

20 **Would it be your choice method e.g. tool or clinical judgement?**

21 I think it is a bit of a balance, I mean I think particularly at consultant level you are, you
22 are employed partially to use your clinical expertise, these tools and tests etc, and
23 ultimately clinical judgement is the one thing that you can't – is something that is acquired
24 at the end of the day. Erm and usually that will involve those and some people do score
25 risk assessment with, by points say, that means they should be referred to psychiatric
26 assessment. But you know, because particularly based on their previous pattern of
27 attendance erm they have got some sort of protective factors – that they are probably
28 safe to go home with their family, as long as you make an adequate follow-up plan in
29 place erm so you ignore the triage tool etc essentially.