CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

Title	The impact of suicidal behaviour on family members in Ireland: a mixed methods study
Authors	Spillane, Ailbhe
Publication date	2019
Original Citation	Spillane, A. 2019. The impact of suicidal behaviour on family members in Ireland: a mixed methods study. PhD Thesis, University College Cork.
Type of publication	Doctoral thesis
Rights	© 2019, Ailbhe Spillane. - http://creativecommons.org/licenses/by-nc-nd/3.0/
Download date	2026-10-30 11:54:45
Item downloaded from	https://hdl.handle.net/10468/7391



UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

The Impact of Suicidal Behaviour on Family Members in Ireland:

A Mixed Methods Study

A thesis submitted to the National University of Ireland, Cork for the degree of Doctor of Philosophy in the School of Public Health



Ailbhe Spillane

BSc (Public Health and Health Promotion), MPH (Public Health)

January 2019

Head of School

Professor Ivan Perry

Supervisors

Professor Ella Arensman

Dr Paul Corcoran

Dr Karen Matvienko-Sikar

TABLE OF CONTENTS

LIST OF TABLES viii
LIST OF FIGURES ix
DECLARATION x
LIST OF ABBREVIATIONS xi
ACKNOWLEDGEMENTS xii
ABSTRACT xiv
PREFACE xvii
Chapter 1. Background 20
1.1 Chapter overview 20
1.2 Nomenclature of suicidal behaviour 20
1.2 Suicide 24
1.2.1 Risk factors for suicide 24
1.3 Self-harm 26
1.3.1 Risk factors for self-harm 27
1.4 Impact of suicide on family members 28
1.4.1 Psychological health impacts 28
1.4.2 Physical and psychosomatic health impacts 32
1.4.3 Social functioning impacts 34
1.5 Impact of self-harm on family members 37
1.5.1 Psychological health impacts 37
1.5.2 Physical and psychosomatic health impacts 40
1.5.3 Social functioning impacts 42
1.6 Postvention 44
1.6.1 Postvention for people bereaved by suicide 45
1.6.2 Strategies for people experiencing a family member's self-harm 48
1.7 Overall aims and objectives 52
Chapter 2. Methods 54
2.1 Chapter overview 54
2.2 Overview of the study design 54
2.2.1 Quantitative and qualitative research paradigms 55
2.3 Rationale for choosing a mixed methods study 60

2.4 Methodological considerations for mixed methods research 63
2.5 Theoretical framework 67
2.5.1 The Social Ecological Model 67
2.5.2 The Growing Flower Model of Reintegration after Suicide 69
2.6 Methods of Study 1: Systematic review of the physical and psychosomatic health outcomes of suicide bereavement 76
2.6.1 Aim 76
2.6.2 Data collection 76
2.6.3 Data Analysis 77
2.7 Methods of Study 2: Mixed methods study of the physical and psychological health effects of suicide bereavement on family members 77
2.7.1 Aim 77
2.7.2 Data collection 77
2.7.3 Data analysis 79
2.8 Methods of Study 3: Exploring how family members bereaved by suicide experience the inquest process 80
2.8.1 Aim 80
2.8.2 Data collection 81
2.8.3 Data analysis 81
2.9 Methods of Study 4: How do people experience a family member's high-risk self-harm? 82
2.9.1 Aim 82
2.9.2 Data collection 82
2.9.3 Data analysis 83
2.10 Ethical considerations 85
2.10.1 Respect for autonomy and justice 85
2.10.2 Beneficence and non-maleficence 86
2.11 Summary of this chapter 87
Chapter 3. Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review 88
3.1 Abstract 89
3.2 Background 90
3.3 Methods 93
3.3.1 Search strategy 93
3.3.2 Inclusion criteria 96

3.3.3 Exclusion criteria 96
3.3.4 Data collection and data extraction 96
3.3.5 Quality assessment and analysis 97
3.4 Results 97
3.4.1 Search results 97
3.4.2 Study characteristics 98
3.4.3 Risk of bias assessment 108
3.4.4 Suicide bereavement and general health 112
3.4.5 Suicide bereavement and specific physical disorders 114
3.4.6 Suicide bereavement and physical symptoms/somatic complaints 116
3.4.7 Suicide bereavement and somatisation 118
3.5 Discussion 119
3.5.1 Strengths and limitations 123
3.6 Conclusions 124
Chapter 4. What are the physical and psychological health effects of suicide bereavement on family members? Protocol for an observational and interview mixed-methods study in Ireland 125
4.1 Abstract 126
4.2 Introduction 127
4.2.1 The impact of suicide on the individual, family and social life 128
4.2.2 Existing qualitative studies 129
4.2.3 Current study 131
4.3 Methods and Analysis 132
4.3.1 Theoretical approach 132
4.3.2 Study design and setting 133
4.3.3 Sampling 134
4.3.4 Recruitment 136
4.3.5 Wellbeing (DASS) Scale 137
4.3.6 Interviews 138
4.3.7 Data management (memos, field notes, verbatim transcription etc.) 139
4.3.8 Data analysis 139
4.3.9 Validity and reflexivity 140
4.4 Ethics and dissemination 143
4.4.1 Respect for autonomy 143
4.4.2 Beneficence and non-maleficence 144

4.4.3 Dissemination....145
4.5 Conclusion....145
Chapter 5. What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland....146
5.1 Abstract....147
5.2 Introduction....148
5.3 Methods....150
5.3.1 Study design and setting....150
5.3.2 Sample and recruitment....151
5.3.3 Measures....154
5.3.4 Data analysis....155
5.4 Results....156
5.4.1 Qualitative results....156
5.4.2 Quantitative results....168
5.5 Discussion....171
5.5.1 Principal findings....171
5.5.2 Strengths and limitations....174
5.6 Implications....176
Chapter 6. How suicide-bereaved family members experience the inquest process: A qualitative study....178
6.1 Abstract....179
6.2 Introduction....180
6.3 Methods....181
6.3.1 Theoretical approach....181
6.3.2 Study design and setting....182
6.3.3 Sample and recruitment....182
6.3.4 Data collection....183
6.3.5 Data analysis....185
6.4 Results....186
6.4.1 Inquest as fearfully unknown....187
6.4.2 Structural processes of the inquest....189
6.4.3 Enduring public and private pain to obtain answers....191
6.4.4 Gaining answers and making sense....194
6.5 Discussion....198
6.5.1 Strengths and limitations....202

6.6 Conclusion 203

Chapter 7: How do people experience a family member's high-risk self-harm? An interpretative phenomenological analysis 205

7.1 Abstract 206

7.2 Introduction 207

7.3 Method 209

7.3.1 Design 209

7.3.2 Sample and recruitment 209

7.3.3 Procedure 211

7.3.4 Data analysis 212

7.4 Results 214

7.4.1 Implications for health and wellbeing 216

7.4.2 Process of meaning-making 220

7.4.3 Feelings of responsibility 224

7.4.4 Challenges with support network 230

7.5 Discussion 235

7.5.1 Strengths and limitations 240

7.6 Conclusions 242

Chapter 8. Discussion 243

8.1 Chapter overview 243

8.2 Summary of main findings 243

8.2.1 Systematic review of health outcomes and suicide bereavement 248

8.2.2 Mixed methods protocol and full outcomes study 249

8.2.3 How do suicide-bereaved family members experience the inquest process? 250

8.2.4 How do people experience a family member's high-risk self-harm? 251

8.3 Theoretical implications 252

8.4 Health policy implications 253

8.5 Implications for clinical practice and suicide prevention 254

8.6 Future research 256

8.7 Strengths and limitations 258

8.8 Conclusions 267

Appendices 293

Appendix 1: Ethical approval for empirical studies 293

Appendix 2: Completed PRISMA checklist 296

Appendix 3: Search Strategies for Study 1 299
Appendix 4: List of excluded studies for Study 1 306
Appendix 5: COREQ checklists for qualitative components of thesis 309
Appendix 6: Topic guide for Study 4 318
Appendix 7: Supporting material from Study 4 320
Appendix 8: Research output, dissemination, training and contributions.....324
Appendix 9: PDF versions of the three published studies 331

LIST OF TABLES

Table 1: Research paradigms used in quantitative and qualitative research.....62
Table 2: Study Characteristics and results 100
Table 3: Risk of bias assessment using Modified Version of Newcastle Ottawa Scale 110
Table 4: Eligibility criteria for the selection of family members bereaved by suicide/open verdict 136
Table 5: Topic guide for family members bereaved by suicide/undetermined deaths 142
Table 6: Characteristics of suicide decedents and suicide-bereaved family members (n = 33) 169
Table 7: Descriptive statistics of DASS-21 scale scores.....170
Table 8: DASS-21 median rank scores by gender and method of suicide 170
Table 9: Topic guide for exploring participants' experiences of the inquest process 184
Table 10: Participant characteristics and theme mapping 215
Table 11: Completed PRISMA checklist for Study 1.....296
Table 12: Search strategy: Medline, Platform: OVID (n = 2,409).....299
Table 13: Search strategy: EMBASE, Platform: Elsevier (n = 1,868) 301
Table 14: Search strategy: PsycINFO, Platform: EBSCO (n = 1,750).....302
Table 15: Search strategy: CINAHL, Platform: EBSCO (n = 932).....304
Table 16: List of excluded studies for Study 1.....306
Table 17: COREQ checklist for Study 2.....309
Table 18: COREQ checklist for Study 3.....312
Table 19: COREQ checklist for Study 4.....315
Table 20: Topic guide for people experiencing a family member's high-risk self-harm 318
Table 21: Participant contribution to superordinate theme 'Implications for health and wellbeing' 320
Table 22: Participant contribution to superordinate theme 'Process of meaning-making' 321
Table 23: Participant contribution to superordinate theme 'Feelings of responsibility' 322
Table 24: Participant contribution to superordinate theme 'Challenges with support network' 323
Table 25: Publications from this thesis 324
Table 26: Additional non-thesis related publications 325
Table 27: Conference presentations during the PhD.....325
Table 28: Contributions to the School of Public Health.....327
Table 29: Courses and training completed during the PhD 328
Table 30: Media coverage of PhD output 329

LIST OF FIGURES

Figure 1: Flow chart of fatal and non-fatal suicidal behaviour 23
Figure 2: Gantt chart of thesis.....65
Figure 3: Overview of mixed methods study 66
Figure 4: Social Ecological Model 69
Figure 5: Levels of reintegration after suicide, adapted from Postuvan et al (2017) 71
Figure 6: Themes of the reintegration process, adapted from Postuvan et al (2017) 74
Figure 7: PRISMA flow diagram illustrating search process for systematic review ...95
Figure 8: Flowchart of recruitment process for SSIS-ACE study and qualitative study 153
Figure 9: Overview of recruitment process 211
Figure 10: Overview of thesis findings 244

DECLARATION

This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism.

_____ _____

Ailbhe Spillane Date

LIST OF ABBREVIATIONS

BMI	Body Mass Index
BPD	Borderline Personality Disorder
CBT	Cognitive Behaviour Therapy
COPD	Chronic Obstructive Pulmonary Disease
COREQ	Consolidated Criteria for Reporting Qualitative Research
CVD	Cardiovascular Disease
DASS-21	Depression, Anxiety and Stress Scale -21
DBT	Dialectical Behaviour Therapy
DSH	Deliberate Self-Harm
DSM-5	Diagnostic and Statistical Manual - 5th Edition
ED	Emergency Department
GHQ	General Health Questionnaire
GP	General Practitioner
ICD-10	International Classification of Disease - 10th Edition
IPA	Interpretative Phenomenological Analysis
NOS	Newcastle Ottawa Scale
NSRF	National Suicide Research Foundation
NSSI	Non-Suicidal Self-Injury
PRISMA	Preferred Reporting of Items for Systematic Reviews and Meta-Analysis
PTG	Post-Traumatic Growth
PTSD	Post-Traumatic Stress Disorder
RCT	Randomised Controlled Trial
SIDS	Sudden Infant Death Syndrome
SSIS-ACE	Suicide Support and Information System (Psychosocial, psychiatric and work-related risk factors of suicide and high-risk self-harm) – A Case-Control Study
TAU	Treatment As Usual

ACKNOWLEDGEMENTS

I am extremely grateful for the support, encouragement and guidance from my supervisory panel, Professor Ella Arensman, Dr Paul Corcoran, Dr Karen Matvienko-Sikar and Dr Celine Larkin. Prof Arensman – thank you for your unwavering support and guidance over the past few years. This thesis would have not have been possible without your excellent supervision, particularly during the data collection phase of the PhD. Dr Corcoran – thank you for your patience, openness and insight, where no question was too small. Dr Matvienko-Sikar – I am so grateful to you for joining the supervisory panel and helping me taking the plunge into qualitative analysis; thank you for giving up your time so generously and your keen eye for detail. Dr Larkin – thank you for taking the time to show me the ropes throughout first year and imparting your invaluable knowledge to prepare me for the interviews. Despite your move to the United States, you always maintained close links and remain an integral part of this team.

I would like to sincerely thank the women and men who took part in this research who shared their experiences at a time of huge personal distress. I was moved by their openness, generosity and resilience.

I would like to acknowledge the support provided by the National Suicide Research Foundation, especially Ms Eileen Williamson, the School of Public Health and the SPHeRE programme. A special thank you to my colleagues and friends Ms Jacklyn McCarthy, Dr Sara Leitão and Dr Eve Griffin. I cannot thank you enough for your support and guidance and always be there to lend a listening ear. I am so

grateful to have made so many friends along the way. Thank you to Dr Christina Dillon and Dr Sarah Meaney for their input on the analysis process and to Ms Gretta O'Connell and Ms Abigail Alexander for assisting with the transcription process. I would like to thank the 2014 SPHeRE cohort, in particular the UCC contingent, Brenda, Caragh, Kieran, Rebecca and Sarah-Jane – you brightened the weekly early morning train journeys to Dublin and I couldn't imagine the PhD journey without you all. A special mention to Siobhain, one of the most kind-hearted and generous people I have ever met. You always puts the needs of others ahead of your own. You will never be forgotten and are always in my thoughts.

To my mother, Christine Conrick, thank you for your unending love and support. You never doubted me and always encouraged me to reach for the stars, and for that I am eternally grateful. I could not have done this without you. A special thank you to Joe and Ronan for your support and understanding throughout the past number of years. Finally, to Ross, thank you for your continuous love, patience and support. You have experienced the highs and lows of the PhD with me, without complaining once. It's onwards and upwards from here!

ABSTRACT

Background

Suicidal behaviour is a complex and multifaceted problem encompassing individual, social and environmental components. There is a plethora of studies examining the adverse psychological health effects of suicide bereavement, but high quality research in this area is still limited. However, the physical health consequences of both suicide and self-harm on family members is lacking. There is also a paucity of research exploring the specific support needs of people bereaved by suicide and people experiencing a family member's self-harm, regardless of severity, both in the short and long-term.

Methods

This doctoral work adopted a mixed methods approach and comprised four studies. Study 1 was a systematic review of the physical and psychosomatic health outcomes of family members bereaved by suicide. Study 2 (Inc. a published protocol) was a mixed methods examination of the physical and psychological health outcomes of family members bereaved by suicide that was conducted using qualitative interviews and quantitative scaled data. Study 3 was a qualitative study exploring how suicide-bereaved family members experienced the inquest process. Study 4 was a qualitative examination of individuals' experiences of a family member's high-risk self-harm.

Results

The systematic review found tentative evidence that suicide-bereaved family members have an increased risk of a number of adverse physical health outcomes, including cardiovascular disease, diabetes and hypertension, compared to people bereaved by non-suicide deaths. The qualitative component of the mixed methods study indicated that intense grief reactions, including guilt, blame, anger and shame manifested in exacerbating and prolonging physical, psychological and psychosomatic difficulties. The quantitative component of the mixed methods study demonstrated that suicide-bereaved family members have elevated depression, anxiety and stress levels. The qualitative study exploring the impact of the inquest process identified a number of distressing and challenging aspects for family members, including the timing and setting of the inquest and hearing graphic evidence about their own family member and that of other people who died by suicide. Finally, the qualitative study exploring experiences after a family member's high-risk self-harm indicated that the health impacts of experiencing multiple high-risk self-harm acts is particularly marked compared to experiencing a single self-harm act.

Conclusion

The doctoral work presented in this thesis is innovative in examining the impact of a family member's fatal or non-fatal suicidal behaviour from multiple research methods. The health impact of family members experiencing fatal or non-fatal suicidal behaviour are broadly similar and require proactive facilitation of support by clinicians. The inquest process was often viewed as distressing by suicide-

bereaved family members. The support needs of people experiencing a family member's suicide or high-risk self-harm are similar and both groups would benefit from a model of proactive facilitation of support by clinicians and other health professionals.

PREFACE

The current thesis involves an examination and exploration of the impact of suicide bereavement and high-risk self-harm on family members in Ireland, through a mixed methods approach. The impact of suicide bereavement was addressed in terms of psychological, physical and psychosomatic impacts on individuals up to three years following the death of a family member. In addition, suicide-bereaved family members' experiences of the coroner's inquest process was also explored. Chapter one begins with a brief discussion of the nomenclature of suicidal behaviour, along with a summary of the risk factors associated with suicide and self-harm. Chapter one also provides a literature review of the impact of fatal and non-fatal suicidal behaviour on family members, including its short-term and long-term psychological, physical, psychosomatic and social functioning effects. Finally, this chapter also provides a discussion on postvention strategies after suicide and in the aftermath of self-harm, as well as a statement of the overall aims and objectives of the thesis. Chapter two describes the mixed methods design utilised in this thesis and also provides an overview of the quantitative and qualitative research paradigms. The rationale for choosing a mixed methods approach is also discussed, along with a presentation of its associated methodological considerations. The two theoretical frameworks used for this doctoral thesis, the *Social Ecological Model* and *the Growing Flower Model of Reintegration after Suicide* are also discussed. Chapter two also details the selection of the sample for studies 2, 3, and 4, as well as the techniques used for the analysis of the qualitative

and quantitative data. Chapters 3, 4, 5, 6 and 7 present four empirical studies, as well as a mixed methods protocol study as follows:

Study 1: A systematic review of the physical and psychosomatic health outcomes in family members bereaved by suicide compared to family members bereaved by other causes of death (Chapter 3)

Study 2: A mixed methods study exploring the physical and psychological health effects of suicide bereavement on family members (Inc. published protocol study, Chapter 4; full outcomes study, Chapter 5)

Study 3: A qualitative study exploring how suicide-bereaved family members experienced the inquest process (Chapter 6)

Study 4: A qualitative study exploring how people experienced a family member's high-risk self-harm (Chapter 7)

Following analysis of data from Study 2, it emerged that experiencing the inquest procedure was a major challenge for suicide-bereaved family members. Considering the limited research in this area, this led to Study 3. Each of the studies are presented in a fashion that is suitable for publication. Three of the five studies have been published to date. One study is currently under review with Archives of Suicide Research, while the other has been submitted to the International Journal of Qualitative Studies in Health and Well-being. The thesis concludes with a discussion integrating the main findings from each of the individual studies in a cohesive manner to provide a better understanding of the impact of experiencing a

family member's suicide or high-risk self-harm. The strengths and limitations of this research and implications for future research are also presented.

Chapter 1. Background

1.1 Chapter overview

This chapter begins by providing an overview of the nomenclature of suicidal behaviour. Following on from this, an overview of the topic of suicide and self-harm and their associated risk factors is presented. An assessment of the current state of the literature on the impact of fatal and non-fatal suicide behaviour on family members is also presented. This review of the literature is separated into quantitative and qualitative research on the physical, psychological and social functioning impacts of (a) suicide, and (b) self-harm on surviving family members. Strategies for postvention for family members bereaved by suicide is also presented, along with a discussion of strategies to assist people in the aftermath of a family member's self-harm. Finally, an outline of the overall aims and objectives of this thesis is given.

1.2 Nomenclature of suicidal behaviour

The field of suicidology has various terms to describe a range of behaviours encompassing self-harm with and without intent, degrees of lethality and underlying motives [1-3]. Terms used in the literature to describe intentional self-harming behaviour include deliberate self-harm (DSH), suicidal self-injury, non-suicidal self-injury (NSSI), self-directed violence and suicide attempt [3]. However, no uniform classification exists for suicidal thoughts and suicidal behaviours, which is problematic for research and practice [2]. Moreover, no standardised definitions of suicidal behaviour or lethality measures exist [4]. The International Classification

of Disease 10th Edition (ICD-10) groups all self-harm activities, including fatal and non-fatal acts together [4]. Therefore, self-harm can potentially include habitual or self-mutilating behaviours [4, 5]. NSSI has been added as a preliminary diagnosis within the Diagnostic and Statistical Manual 5th Edition (DSM-5). NSSI refers to the intentional destruction of one's own body tissue (e.g., cutting, burning, hitting) without suicidal intent [6]. However, there have been significant debates about the usefulness of the term. Proponents argue that it addresses a topic with a high prevalence rate, while those who are against the term feel that it is incorrect to call a behaviour "non-suicidal" which is a clear risk factor for suicide attempts [7]. A set of definitions that are generalisable and explicit represent the best alternative [3, 4].

The World Health Organisation has identified greater than a dozen terms used to describe intentional self-harming behaviour and have stressed the importance of consensus with regard to the definitions used to describe suicidal behaviour [3]. De Leo and colleagues [4] have devised a nomenclature for fatal and non-fatal suicidal behaviour (Figure 1). The key terms are written in bold, where specificity increases visually, from left to right. The figure starts by determining the main outcome, that is, is the individual alive or dead. Secondly, whether the behaviour was self-initiated is an important concern. Finally, whether there was an intention to die is included to complete the nomenclature. Following on from this recommended set of definitions, for fatal suicidal behaviour, only the term 'suicide' will be used for this thesis. For non-fatal suicidal behaviour, this thesis is solely concerned with high-risk self-harm. The term 'self-harm' will also be used throughout this thesis. High-risk self-harm can be defined as behaviour that could

have been lethal without intervention or by chance; and/or involved methods that are associated with an elevated risk of death, including hanging, jumping, and gunshot [8]. Strict criteria have been previously developed to identify cases of high-risk self-harm according to the method of self-harm used [8]. These criteria specify that, for cutting to be considered high-risk, for example, the wound must have penetrated a body cavity or a major organ, or that the laceration caused veins or arteries to become severed or damaged [8]. Both those engaging in high-risk self-harm with high suicidal intent and those with low suicidal intent were included in the current study for comprehensiveness. Suicidal intent for people engaging in high-risk self-harm was determined by the crisis nurse specialist or hospital consultant following a review of the self-harm act and the potential precautions taken to avoid discovery.

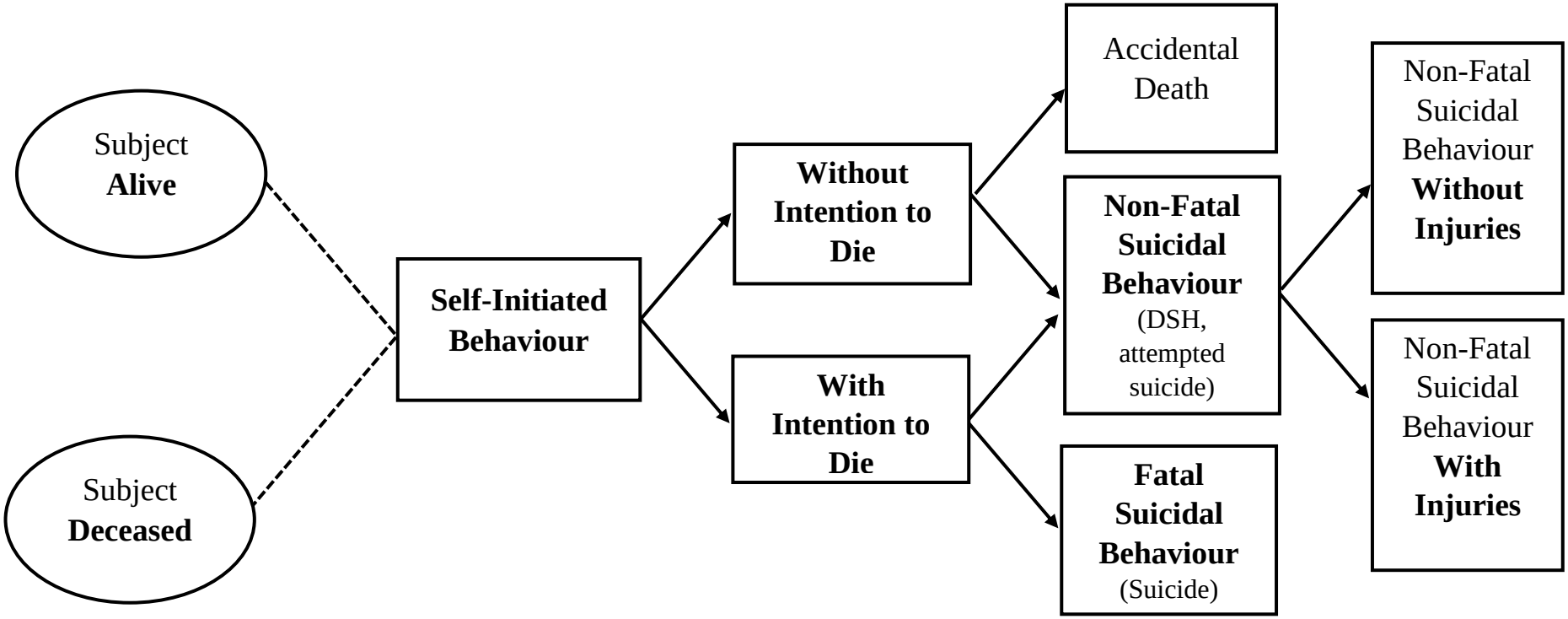


Figure 1: Flow chart of fatal and non-fatal suicidal behaviour

1.2 Suicide

Suicide is a complex phenomenon whose aetiology is driven by a multitude of factors. Suicide can be defined as the act of deliberately killing oneself [9]. To be considered a suicide, the act needs to be self-initiated and the person must have intended to cause their own death. Nearly 800,000 people die by suicide every year globally [10], with 22% of people being exposed to suicide during their lifetime [11]. Distal factors related to suicide include genetic loading or predisposition, personality traits such as impulsivity or aggression, and experiencing traumatic events in early life [12]. Proximal factors related to suicide include the presence of a psychiatric or physical disorder and the availability of means [12]. However, psychopathology cannot fully account for a death by suicide, but should be viewed as a contributory factor [13]. The rate of suicide in Ireland in 2015 was 9.7 per 100,000, which is slightly lower than the global average of 10.7 per 100,000 for the same period [14]. Male suicides typically comprise about 80% of all suicides in Ireland, and therefore the male suicide rate (16.4 per 100,000) is much higher compared to the female rate (3.2 per 100,000) [15]. Risk factors for suicide can also be societal, as the recession and subsequent austerity in Ireland (2008-2012) had a significant negative impact on male suicide rates [16].

1.2.1 Risk factors for suicide

Many factors increase suicide risk, including, being male [17], a previous history of self-harm [18], psychiatric disorders [19], a family history of psychiatric disorders [17, 20], feelings of hopelessness [20], and co-morbid disorders [20]. Previous self-harm increases the odds of dying by suicide to 4.84 (95% CI: 3.26-7.20), with risk

being most pronounced in the first six months since an episode of self-harm [21-23]. Empirical research has concluded that one in every twenty-five people who present to a hospital with self-harm will take their own lives in the following five years [24]. Having an alcohol-related disorder increases the risk of suicide following a prior episode of non-fatal self-harm [25], with alcohol consumption present in the toxicology reports of 44% of suicides in Ireland during September 2008 and June 2012 [26]. This time frame coincided with the economic recession and subsequent austerity measures which had a significant negative impact on male suicide rates in Ireland. Rates of suicide in men were 57% higher by the end of 2012 than if the pre-recession trends (2000-2007) had continued [16].

Suicide of a family member also confers a significantly increased risk of dying by suicide [27, 28]. Twin, adoption and family studies have previously found that the aetiology of suicidal behaviour is at least partly explained by genetics, with possible contributions from environmental and familial stressors, as well as the intergenerational transmission of familial adversity [27]. Research on familial suicide risk is predominately related to parental and offspring risk, with those exposed to sibling suicide being less researched [29, 30]. However, there is some evidence to suggest that individuals bereaved by a sibling's suicide are also at high risk of dying by suicide themselves [31, 32]. Offspring exposed to parental suicide and self-harm are also at increased risk of suicide themselves [33-35]. Exposure to parental suicide was associated with a 2.5-fold increase in suicide risk in offspring following adjustment for confounders [35]. Further, offspring of suicide decedents had a higher risk of suicide compared to offspring bereaved by a non-suicide death

(OR: 1.81, 95% CI: 1.56-2.10) [36]. This indicates that bereavement by both parental and sibling suicide represents a risk factor for suicide in surviving family members.

However, the risk of suicide following suicide bereavement is not restricted to blood-related relatives [37-39]. Partners bereaved by suicide have an increased risk of incident mental disorders, higher rates of psychiatric admission after the death and an increased risk of suicide and all-cause mortality [39]. A number of potential explanations have been put forward to describe the likely pathways of this increased risk, including assortative mating based on the same traits and shared social adversity [37]. Therefore, the risk of suicide is not restricted to blood relatives, but extends to non-blood relatives also.

1.3 Self-harm

Self-harm is up to 10-40 times more common than suicide and has been recognised as an important risk factor for subsequent suicide [24, 40-42]. The rate of hospital-treated self-harm in Ireland is 206 per 100,000 [43]. A previous history of self-harm is an important risk factor for future self-harm and suicide [24]. There were 11,485 self-harm presentations in Ireland in 2016, involving 8,909 individuals [43]. Similarly to previous years, peak rates in self-harm were amongst young females (15-19 years: 763 per 100,000) and young males (20-24 years old: 516 per 100,000) [43]. Since self-harm acts occur much more frequently than suicide deaths, the number of family members affected by self-harm is likely to be greater than those experiencing suicide bereavement. However, the exact number of family members affected by every self-harm act is unknown. Research also indicates that self-harm

rates are impacted by societal factors such as the recent economic recession and austerity measures in Ireland (2008-2012) [16].

1.3.1 Risk factors for self-harm

Non-fatal self-harm is more prevalent than suicide and confers a significant risk to both the individual and society with respect to suicide risk and morbidity, while also conferring a significant cost to health services [44, 45]. Societal risk factors for self-harm include the global economic recession, as it impacted on rates of self-harm for both males and females in Ireland [16]. Rates of hospital presentations for self-harm in 2016 were still 10% higher than pre-recession rates (2007) [43]. Psychological distress is a common risk factor for self-harm in the previous 12 months (OR: 3.55; 95% CI: 2.06-6.14) and repetition of self-harm (OR: 4.97; 95% CI: 1.08-22.9) [46]. Factors that have a consistent association with repetition of self-harm include personality disorder, hopelessness, history of psychiatric treatment, alcohol/drug abuse/dependence, and living alone [44]. Familial clustering of suicidal behaviour has been shown to occur in young people engaging in self-harm. Sibling (OR: 3.4; 95% CI: 2.8-4.1), maternal (OR: 2.7; 95% CI: 2.5-3.1) and paternal (OR: 1.9; 95% CI: 1.7-2.1) self-harm were among the strongest risk factors for youth self-harm [29]. A large population-based cohort study indicates that self-harm in both parents doubles the risk of offspring self-harm when compared to having one parent who has self-harmed [47].

Specifically, psychological risk factors for high-risk self-harm include hopelessness, perceived loneliness, current mood disorder and neuroticism [48-50]. Previous self-harm, low self-esteem, interpersonal and communication difficulties

are also strongly related to high-risk self-harm [48, 49]. The risk of repeated self-harm is highest within the first week of discharge [25]. Other risk factors include hopelessness, being admitted to a psychiatric hospital in the year prior to the index self-harm act, being female, being aged 30-40 years and having any mental health or alcohol-related diagnosis [25, 50].

1.4 Impact of suicide on family members

The review of the literature pertaining to the psychological, physical, psychosomatic, and the social functioning impact of suicidal behaviour on family members will be discussed separately for quantitative and qualitative research. The rationale for this decision is that, to date, the field of suicidology has been dominated by an almost exclusive use of quantitative research methods [51, 52]. Therefore, it is important to highlight the overall contribution of quantitative and qualitative research to suicidology. This division is for practical reasons only and does not reflect the author's epistemological or ontological viewpoint. For the purposes of this research, psychosomatic health impacts are defined as subjective physical complaints (e.g. headache, stomach ache, backache, dizziness) and psychological complaints (e.g. feeling low, irritability, nervousness, difficulty in getting to sleep) without any known organic disease [53].

1.4.1 Psychological health impacts

Qualitative research

In comparison to quantitative research, there is relatively little qualitative research exploring the psychological health impacts of suicide bereavement on family

members. The existing qualitative literature gives a broad overview of some of the initial reactions to suicide, including extreme sadness, longing for the deceased, guilt, fear, blame, shock, disbelief, anger, anxiety, relief, numbness, emptiness and the need to search for a reason for the suicide [54-58]. These initial feelings can often persist for months following the suicide, along with physician-diagnosed mental disorders and suicidal ideation [54, 55, 59, 60]. Occasionally, people bereaved by suicide describe being actively avoided or feel blamed by others for the death [55, 60-62]. This brings about feelings of stigma, where family members isolate themselves due to feelings of shame and blame [61, 63], leaving them feeling alone and unsupported throughout the grieving process [61, 64].

Meaning-making is the process of seeking understanding following loss and is an important aspect of the grief process [65]. People bereaved by suicide have to reconstruct their lives after the death [66], but they frequently struggle with meaning-making after the death. They often focus on memories of the deceased and experience intense longing for the deceased [67]. Speaking about the death and the events surrounding the death can serve to increase understanding of the suicide, thereby aiding the grieving process [68]. Other suicide-bereaved family members are able to engage in a transformative pattern of reconstruction, wherein they want to embrace and lead a more meaningful life [66]. They often seek out meaning from the suicide and use this as an impetus to value life more. Some reconstruct their lives through a sense of commitment, which is usually through suicide prevention initiatives. The prevailing motivation for this was altruistic, as the hope was to prevent others going through the pain they experienced from their

family member's suicide and not wanting their loved one's death to be in vain [66, 69].

In summary, there is a paucity of qualitative research exploring the psychological health impacts of suicide bereavement, with the scant research tending to focus on initial emotional and grief reactions. Future qualitative research is required, which provides an exploration of the medium and long-term mental health impacts of suicide bereavement on family members. This is imperative so that support services can be put in place to meet family members' specific needs.

Quantitative research

Consistent quantitative empirical evidence exists which outlines some of the adverse mental health effects of suicide bereavement, including substance abuse, self-harm and suicide [70, 71]. Suicide-bereaved family members are also at increased risk of mood disorders, anxiety, substance use disorders, complicated grief, depression, post-traumatic stress disorder (PTSD), and feelings of guilt, shame, stigma, rejection and loneliness than those bereaved by non-suicide deaths [39, 72-79]. A recent meta-analysis found that the lifetime prevalence of exposure to suicide was 1 in 5 (21.83%) [11].

Suicide risk following suicide bereavement appears to differ by kinship and is not restricted to blood-related relatives [38, 80, 81]. Partners and parents, in particular mothers compared to fathers, have the most distinct suicide risk [38, 80, 81]. Suicide-bereaved spouses are at increased risk for a number of mental disorders, including mood disorders, PTSD, anxiety, substance use disorders and self-harm compared to non-suicide bereaved spouses [39]. While mothers

bereaved by an offspring's suicide have a distinct suicide risk compared to fathers, suicide-bereaved parents in general have an increased risk of depression, anxiety and psychiatric admission compared to parents bereaved by the non-suicide death of an offspring [80, 82]. Research into suicide-bereaved siblings is lacking [30], despite evidence demonstrating that the risk of suicide following a sibling's death is elevated, with risk increasing significantly if the death was suicide [31]. Suicide-bereaved children and youth are a particularly vulnerable group [83] who are also at a heightened risk of suicide, self-harm and depression than non-suicide bereaved children [35, 76, 80, 84]. Moreover, suicide risk is more apparent the earlier in age a child is exposed to parental suicide [35]. This evidence highlights that blood and non-blood-related family members (including spouses), as well as friends and peers are impacted following suicide bereavement and, therefore, a range of kinships should be considered in future research studies.

While there is overall consistent evidence regarding adverse psychological health outcomes following suicide bereavement, it is important to note that several quantitative studies have not found such differences. In short, these studies found that people bereaved by suicide have similar outcomes to people bereaved by sudden violent deaths, including road traffic accidents [73, 85-90]. However, there are some important differences between people bereaved by suicide and other violent deaths. People bereaved by suicide have elevated perceived stigma scores and increased feelings of shame, guilt and responsibility compared to people bereaved by other sudden violent deaths [91]. Researchers have begun to identify that quantitative research may not be the best method to provide a comprehensive picture of grieving following suicide and its subsequent outcomes, as grieving can

be viewed as a social process [51, 92]. Researchers are theorising that while grief following suicide may not be quantitatively different to other types of grief, there may be qualitative differences [92]. Such differences in the grieving process need to be explored through qualitative research methods that focus on understanding suicide and seeking explanation by means of qualitative research.

1.4.2 Physical and psychosomatic health impacts

Qualitative research

Qualitative literature exploring physical and psychosomatic experiences following suicide bereavement is significantly lacking. None of the studies cited here specifically sought to explore the physical and psychosomatic health outcomes following suicide bereavement from the outset, but rather briefly reported such experiences, largely in the context of psychological health difficulties. Common reactions following suicide bereavement are problems with sleeping, including insomnia, restlessness and nightmares, which in turn leads to extreme tiredness [57, 93]. Physical pain, heart problems, eating disorders and nausea/vomiting in the months after the death have also been reported in qualitative studies following suicide bereavement [94]. Physiological and somatic reactions experienced in the aftermath of a suicide can be intertwined with the experience of depression [95].

In some cases, physical and psychosomatic health consequences of grief, including insomnia, poor appetite and low energy, hampered participants' ability to proactively seek formal support after the suicide [59, 95]. However, conversely, for others, this acted as the strongest reason to seek professional help [56]. However, overall findings related to physical and psychosomatic health impacts are sparse

and provide only a minimal and a very descriptive overview of family members' experiences. Consequently, further qualitative research is required that specifically addresses the physical and psychosomatic health experiences of suicide-bereaved family members, rather than focusing solely on psychological health outcomes.

Quantitative research

In comparison to the psychological health outcomes following suicide bereavement, the physical and psychosomatic health outcomes have been relatively neglected in the quantitative literature. There have been no systematic reviews conducted in this area. The scant research indicates that people bereaved by suicide have a higher risk of physical illnesses, experience more physical pain and have poorer general health [72, 74, 75, 96]. Additionally, people bereaved by suicide have an increased risk of cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), hypertension and diabetes [82]. However, these significant positive associations are not consistent in the literature. Some studies found that suicide-bereaved family members have a lower risk of cancer, diabetes, cardiovascular and chronic lower respiratory tract disorders than those bereaved by non-suicide deaths [39], while suicide-bereaved children visited a GP less often than non-suicide bereaved children [97].

Studies have not found a statistically significant association between psychosomatic health outcomes and suicide bereavement [73, 75-78, 87, 88, 96-101]. Therefore, uncertainty remains regarding whether there is a difference in psychosomatic health outcomes between suicide-bereaved and non-suicide bereaved family members. It is possible that qualitative research, as opposed to

quantitative research, is more effective in providing an understanding of psychosomatic health experiences following suicide bereavement, which take into account grief reactions and the social processes at play.

1.4.3 Social functioning impacts

Qualitative research

There is a relative paucity of qualitative research exploring the impact of suicide bereavement on social functioning. Of the available literature, it is clear that people bereaved by suicide sometimes experience social stigma, leaving some too afraid or ashamed to tell others how their family member died [102], which can lead to self-isolation after the death [55, 103]. Feeling stigmatised negatively impacts help-seeking [104], as family members often feel silenced [105] or feel the need to hide their grief reactions from others. This is often because they sense that others would find their expressions of grief to be uncomfortable and embarrassing [64, 103]. Family members have described how they wanted to speak about their family member in happier times before the death, but they perceived that this was not socially condoned [103, 105]. People bereaved by suicide sometimes have feelings of apprehension of social situations and a sense of anguish and anxiety about resuming normal life in general [54, 93]. They also report being actively avoided by others [61, 93], which reinforces feelings of guilt, hurt and rejection, as well as social embarrassment [64].

The inquest process is a major official aspect that people bereaved by suicide are confronted with, yet qualitative research exploring the impact on family members is conspicuously absent from the literature [106, 107]. Inquests in Ireland

form part of the medico-legal process, which is conducted by a coroner to investigate all sudden, unnatural, violent or unexplained deaths. The coronial inquest is a public hearing, where medical and legal professionals are present, as well as members of the police force. The scant research that exists indicates that family members found aspects of the inquest process distressing, including swearing on the Bible, having to give evidence and hearing graphic evidence, which exacerbated grief reactions including guilt, blame and shame [106, 107]. This qualitative evidence indicates that the inquest process is an important and sometimes traumatic component of suicide bereavement, which has the potential to impact on family members' social functioning. Despite this, no qualitative study has been conducted in Ireland to explore the impact of the inquest process on family members bereaved by suicide.

Quantitative research

Research indicates that suicide bereavement is a highly stigmatising type of sudden loss, where the bereaved experience higher perceived levels of social stigma compared to people bereaved by natural death [91, 108, 109]. Researchers suggest that stigma may explain, in part, the adverse outcomes of suicide bereavement, including grief difficulties, suicidal ideation, depression [110], self-harm [28], reduced informal support [111] and delays in seeking and accessing support [112]. Suicide bereavement is characterised by a number of factors, including experiencing more shame, stigma and rejection than those bereaved by other causes of death [80, 108, 110, 113, 114]. Specifically, feelings of shame after suicide bereavement may result in the bereaved completely withdrawing from society,

which can also have a detrimental impact on the family unit and social relationships in general [108]. Isolation can also result from being shunned by those in one's social circle, which can reinforce feelings of blame and guilt about the death [110].

Due to the increased risk of suicide and self-harm [28, 70, 71], it is important that people bereaved by suicide receive support, as this can decrease symptoms of depression [115]. Suicide-bereaved family members were significantly less likely to have received informal support and reported delays in receiving formal or informal support [112] .Suicide-bereaved family members endorse needing professional help in the aftermath of the death [112, 116, 117]. This professional support can help to alleviate the negative health sequelae experienced by those bereaved by suicide. Counselling services are the most commonly received type of help, yet this support is not necessarily always available [116]. While it is becoming increasingly clear that aspects of suicide bereavement, including shame, rejection, and stigma, can adversely affect family members' health, it is unclear what support services are required to meet the perceived needs of suicide-bereaved family members, particularly in the Irish context.

Similarly, to the qualitative research, there has been little quantitative research conducted on family members' reactions to the inquest process. Earlier studies conducted some forty years ago noted that spouses bereaved by suicide were most distressed when asked to give evidence during the inquest procedure [118-120]. One-quarter and one-fifth of family members felt the legal aspects of the inquest, including having to give evidence in a witness box, swearing on the Bible and hearing the pathologists report read out, was distressing. Around half of the

participants surveyed found it distressing that other people could be/were in attendance at their family member's inquest [120]. One more recent study found that 42% of suicide-bereaved family members encountered problems with the coroner's office, which included the inquest process [78]. In short, both quantitative and qualitative research is lacking in this area. Furthermore, no empirical research on suicide-bereaved family members' experiences of the inquest process has been conducted in Ireland to date.

1.5 Impact of self-harm on family members

Research into the impact of self-harm on family members has been predominantly conducted by examining self-harm more generally, with no particular emphasis on lethality or intent of the act. Furthermore, the majority of these studies have examined the impact of self-harm on parents, with a limited number of these studies specifically exploring the impact of self-harm on a variety of kinships. Consequently, most studies presented here discuss self-harm generally, with no particular distinction of self-harm, with respect to intent or lethality. Few studies described the intent or medical severity of the self-harm. Therefore, it is possible that experiencing a family member's low lethality self-harm with no suicidal intent may be different to experiencing a family member's high-risk self-harm.

1.5.1 Psychological health impacts

Qualitative research

Little research has explored the impact of experiencing a family member's self-harm, especially high-risk self-harm. The majority of the research that has been conducted in the area has focused on parental experiences following an offspring's

self-harm [121-123]. Of the existing research, common feelings experienced after a family member's self-harm include shock, anger, guilt, disbelief, shame, sadness, helplessness and a sense of grief [121-127]. Previous literature indicates that some parents and family members may develop mental health problems, including depression, anxiety and engage in self-harm themselves [111-113].

'Walking on eggshells' is a common metaphor mentioned in the literature, which describes how parents were afraid of upsetting their child for fear it would lead to another self-harm act [123, 128-130]. Parents felt their suicidal child had a sense of power over them, where the child was the focal point within the family, which was often to the detriment of family dynamics [131]. They also noted being in a state of constant alarm regarding when the next self-harm act would occur, which compounded psychological distress [125]. Parents described how they were constantly on high-alert and some reported checking their offspring's room for knives and sharp objects that may be used to harm themselves [125]. This behaviour can eventually lead to parents becoming annoyed or exasperated with their offspring's self-harm behaviour [132]. Parents described becoming protective of their suicidal offspring, with siblings sometimes exhibiting similar protective behaviours [125]. Furthermore, they felt especially fearful as they did not know how to meet the needs of their suicidal family member. This brought about feelings of fear, loneliness, despair and a huge feeling of responsibility for the actions of their family member [124].

Given the dearth of evidence related to the impact of a family member's self-harm, further research needs to be conducted that explores the health impact

and subsequent support needs of family members generally. Furthermore, attention needs to be given to other familial and non-familial (friends, peers) groups besides parents, as the majority of research to date has focussed on this group.

Quantitative research

Suicidal behaviour aggregates in families, and this association is independent of the increased risk of psychiatric disorders alone [27, 133-135]. A number of possible explanations for this association have been put forward, including generational social adversity [37, 39], familial transmission of abuse [135], the transmission of impulsive aggression and certain biobehavioural phenotypes [136].

Offspring experiencing parental self-harm are at increased risk of suicidal ideation, fatal and non-fatal suicidal behaviour [36, 137, 138], and affective disorders, including depression, anxiety and bipolar disorder [36]. The risk of offspring self-harm appears to differ according to maternal or paternal self-harm, with the former being a stronger risk factor [36, 138].

Similarly, sibling self-harm also confers a strong risk for youth self-harm [31], but siblings as an at-risk group have been specifically neglected in the literature [30]. A small number of studies have been conducted to investigate caregiver burden following a family member's self-harm. Of the existing research, experiencing a family member's self-harm is significantly associated with caregiver strain [139], feelings of sadness, anxiety, fear [140, 141] and poorer self-reported general health [142]. Among those who experienced self-harm and reported mental health problems, depression was the most commonly reported issue (21%) [143].

While it is clear that exposure to a family member's self-harm, irrespective of being blood-related or not, increases the risk of own self-harm and suicide, further research needs to assess the impact of early childhood adversity [135], and examine the pathways and antecedents of suicidal behaviour within families [136, 144, 145]. There is also a dearth of quantitative evidence which specifically focuses on outcomes following high-risk self-harm. The scant research indicates that anxiety levels following familial high-risk self-harm are elevated when compared to people experiencing lower lethality self-harm [140]. However, this conclusion is based on one study with a small sample size. Therefore, results should be interpreted with caution [140], with further research required to confirm this association.

1.5.2 Physical and psychosomatic health impacts

Qualitative research

There is a paucity of qualitative research specifically focusing on the physical and psychosomatic health experiences following a family member's self-harm. Research has traditionally focussed more generally on people's responses to, or perspectives of a family member's self-harm, without specific regard to how this impacts their physical health. Just two studies exploring the impact of self-harm on family members tangentially mentioned physical and psychosomatic health effects [122, 126].

The first study was an English qualitative study where 37 parents were interviewed about the impact of their child's self-harm. Parents discussed experiencing negative physical health consequences, including nausea, chest pains and physical exhaustion following a family member's self-harm [122]. The severity

of the self-harm varied across the sample and may have impacted the health sequelae experienced by family members. Weight loss and an inability to sleep were enduring psychosomatic symptoms commonly endorsed by parents following an offspring's self-harm [122]. The second study involved interviewing parents of children who engaged in self-harm. It found that the severity of emotional reactions experienced was displayed in symptoms including sleeplessness [126], but this was not discussed any further in the course of the paper.

In summary, there is a scarcity of studies exploring this area in any depth. Notwithstanding this, it appears that experiencing a family member's self-harm, without specific regard to intent or severity, is distressing and impacts physical and psychosomatic health. It is, therefore, plausible that any health impacts present may be heightened if the family member's self-harm is high-risk, either in terms of intent or lethality.

Quantitative research

There has been no published quantitative research specifically examining physical or psychosomatic health outcomes following a family member's self-harm. The research to date has exclusively focussed on mental health sequelae following a family member's self-harm. While no research specifically focussed on physical and psychosomatic health outcomes following a family member's self-harm, some research suggested that suicide-bereaved family members are vulnerable to mental and physical health illness even prior to their offspring's death. It is therefore plausible that these increased health impacts seen in suicide-bereaved parents may be in part due to the ongoing suicidal behaviour of their offspring prior to their

suicide death, leaving people experiencing a family member's self-harm vulnerable to negative health outcomes [82].

1.5.3 Social functioning impacts

Qualitative research

Caring for a family member who engages in self-harm can negatively impact on social life, work life and leisure activities [146]. In particular, work life is often affected, with people having difficulty functioning at work or having to take significant periods of time off work to care for their family member [127, 146, 147]. One of the studies included mostly participants experiencing a family member's self-harm (n = 13). However, two of the participants had experienced a family member's suicidal ideation only [147]. While suicidal ideation is an important risk factor for self-harm and suicide, suicidal thoughts are not sufficient predictors of suicidal acts [148]. Therefore, many people can experience suicidal thoughts without ever engaging in self-harm. Consequently, experiencing a family member's suicidal ideation may be very different to experiencing a family member's self-harm and may lead to very different health and social impacts.

Similarly to those experiencing suicide bereavement, family members experiencing self-harm often tried to make sense of and search for reasons for the self-harm [123, 131]. Some believed the self-harm is an addictive or attention-seeking behaviour [131], while others surmised that difficulties in life circumstances, such as marriage breakdowns, may have been a contributing factor to the self-harm [127]. Feelings of guilt, shame and stigma following a family

member's self-harm is not uncommon, with some keeping the self-harm a secret from others outside of the family [122, 127, 149]. Others felt a sense of embarrassment about the self-harm [127] and were reluctant to speak about the self-harm to those outside of the family. This was sometimes seen as a means of protecting their family member from negative and stigmatising reactions [131]. Potential reasons for hiding the self-harm from immediate family members included trying to minimise any further familial discord and to preserve familial relationships [122].

The latter point illustrates how the impact of self-harm extends beyond the individual to familial and relationship impacts. Following on from this, the vast majority of research on the familial impact of self-harm has focused on parents' responses to their children's self-harm [122, 123, 126, 131, 150], with little published research focussing on other kinships. Parents describe feelings of anger and guilt towards the offspring for causing a disruption to familial functioning and wellbeing of other family members [122, 125, 127, 151]. Often, the offspring engaging in self-harm is viewed by parents as being in a position of power, where they are afraid to recommence any level of discipline for fear of precipitating another act of self-harm, leading to changes in their parenting style [123, 126, 131]. Notwithstanding this, some parents reported that their offspring's self-harm has led to positive changes both to family life, and also to their parent-child relationship [121, 123, 151], with some reporting that they became closer to their offspring following the self-harm act [151].

Quantitative research

Only one quantitative study was identified that examined how family members' social functioning was affected following a family member's self-harm. A cross-sectional study of 130 parents who experienced an offspring's self-harm, who took part in an eight-week psycho-educational support programme, was conducted. Baseline statistics indicated that the majority of participants (61%) perceived their social support as low [143]. Given the challenges faced by those experiencing a family member's self-harm, it is important that they are supported both in a formal and informal capacity, to alleviate some of the inherent negative health and social impacts [143]. Further research needs to be conducted in this area given the clear lack of quantitative and qualitative research on the impacts of experiencing a family member's self-harm.

1.6 Postvention

Postvention is the term used to describe various tertiary prevention strategies that are targeted towards individuals after an event [152]. Specifically for this thesis, postvention refers to services or strategies that are aimed at people bereaved by suicide. Services or strategies that are used to help people experiencing a family member's self-harm will also be discussed. It is important to explore the needs of individuals experiencing a family member's suicide or self-harm, as this group is at increased risk of engaging in suicidal behaviour themselves [27, 153]. Due to this elevated risk of suicidal behaviour in exposed family members, academics have

proposed that postvention can serve as suicide prevention [153-157] especially given the negative consequences for the individual and the family unit [158].

1.6.1 Postvention for people bereaved by suicide

Researchers have noted that many postvention strategies originate from a "top-down" approach, led by clinicians and researchers [154]. However, a "bottom-up" approach, which involves taking into account the individuals' lived experiences to advance postvention strategies is more favourable in order to establish services that are specifically tailored to meet the needs of affected individuals [154]. Types of existing postvention programmes include support groups, social support, online support and psychotherapy interventions [155]. Interventions that have shown promising results include gatekeeper training amongst school personnel and other groups to improve the quality of crisis intervention being provided. Moreover, providing outreach to family members at the time of suicide increased the use of services providing assistance with the grieving process. Bereavement support group interventions carried out by trained personnel led to reductions in emotional distress [152].

A number of systematic reviews have been conducted in the area to synthesise the evidence related to interventions specifically for people bereaved by suicide [152, 159, 160]. When all types of interventions targeting both adults and children were examined, six of the eight included studies showed some benefit in receiving the intervention. However, the authors warned that all but one of the studies had significant methodological shortcomings [159]. As a result, clear

implications for practice cannot be drawn from the available evidence. Taking this into consideration, the authors give a number of tentative suggestions for postvention in practice. Some of these suggestions include psychologist-led group therapy for children bereaved by suicide which may reduce anxiety and depression. Additionally, both professional and volunteer-led group therapy may help in reducing a number of emotional reactions, including feelings of anger towards the deceased, anxiety, depression, grief and shame in adults [159]. However, it is unknown when it is best to engage in postvention and whether the interventions benefit everyone bereaved by suicide or whether only specific individuals benefit from them [159].

Research exploring the perceived needs of people bereaved by suicide is lacking [161]. Furthermore, there is a discrepancy between the needs of people bereaved by suicide and whether those needs are met [161]. Previous postvention research with people bereaved by suicide noted that their primary need is to be listened to and supported following the death [162]. The scarce research on this topic shows striking similarities; suicide-bereaved family members' needs are diverse [55] and they require both professional support, including counselling and psychotherapy, and informal support, from family and friends [161]. Peer support, feeling listened to and being cared for by their extended social network is crucial [161, 163]. Following on from this, qualitative research indicates that family members bereaved by suicide value a number of aspects of support groups, including normalising their feelings, having the space to talk with peers and gaining new information and insights [164]. However, support groups which lack adequate structure, organisation and leadership can leave family members feeling that their

needs have not been met [164]. It is therefore crucial that any support groups consider the needs of family members when planning and running such groups. Finally, people bereaved by suicide require information on the grief processes associated with suicide bereavement and how it will impact them and their family, but particularly how the suicide may impact on surviving children [161].

However, the paucity of studies highlights that there is still a discrepancy between what people bereaved by suicide require in terms of support and how these needs are met [161]. More culturally sensitive research is required, where the voices of people bereaved by suicide all across the world are heard [161]. Additionally, further research is required that does not solely rely on samples of suicide-bereaved individuals who are already proactively seeking support and assistance [155]. Researchers have called for more research that identifies the specific experiences of people bereaved by suicide based on a number of characteristics, including age, gender, closeness with and kinship to the deceased [154]. Research is also required regarding the familial context of suicide bereavement and help-seeking behaviours [155]. Finally, there has been a call for more qualitative research in suicidology that explores phenomena or processes following suicide bereavement, as well as to better understand why people take their own lives [13, 161].

In summary, there is some evidence to suggest that gatekeeper training, grief counselling, and providing outreach after suicide is beneficial for people bereaved by suicide. However, it has been acknowledged that further research on the effectiveness of both interventions and postvention services is still required

[165]. Furthermore, attention needs to be given to the perceived needs of people bereaved by suicide [161, 163].

1.6.2 Strategies for people experiencing a family member's self-harm

Family members can be involved in interventions targeted at people who self-harm in an attempt to reduce the risk of future self-harm acts. However, the results of these studies have been inconsistent. Some research indicates that family therapy conferred no benefits over treatment as usual (TAU) in reducing rates of repeated self-harm in adolescents [166], while cognitive-behavioural family treatment for youth with previous self-harm presentations significantly increased the probability of survival without another self-harm act by the three month follow-up period in youth who received the intervention [167]. Therefore, this trial provides evidence that the inclusion of cognitive-behaviour and family components to an intervention can provide some protection for future self-harm acts in youth [167].

Further evidence suggests that a family therapy intervention, involving the self-harm patient and their family member, did not confer any additional benefits over TAU in reducing subsequent hospital-treated self-harm [166]. However, the self-reported results from the self-harm patients and their family members in the intervention groups showed that this group reported significantly better outcomes on a number of general emotional health domains. This suggests that the intervention improved general mental health wellbeing in self-harm patients and their family members [166]. It is plausible that the intervention fostered better communication and a greater level of familial cohesiveness, thereby allowing for

greater inter-familial openness on mental health and self-harm. Previous research has indicated that suicidal ideation in children and adolescents is associated with communication difficulties with parents, whereas good communication with parents appears to be protective of suicidal ideation [168].

Specifically, people experiencing a family member's self-harm are crucial to suicide prevention as they have access to the suicidal person and have first-hand knowledge of the circumstances and difficulties encountered by them [169]. While theoretically speaking, family members are in a good position to contribute to suicide prevention, they are often not equipped to recognise and respond to suicidal crises as they unfold [170]. Qualitative research indicates there is a significant unmet need, both practical and professional, for those caring for a suicidal family member [125, 130, 131, 146, 171].

However, two of the studies specifically included family members who experienced suicidal ideation, together with those who experienced self-harm [130, 131]. Experiencing a family member's suicidal ideation may be quite different to experiencing a family member's self-harm, in terms of emotional responses, health impacts and support requirements. Additionally, none of the published literature described the lethality or severity of the self-harm [122, 123, 125, 126, 130, 131, 146, 171], which hinders the comparability or transferability of findings across the studies, as some may have involved superficial self-cutting, with no suicidal intent.

Family members describe the usefulness of talking to others who have experienced a relative's self-harm as they understand and can relate to the problem [122]. They advocated for the use of support groups, but often these were

not available [122]. They also felt that they were lacking in information about self-harm, which exacerbated feelings of helplessness as they were unsure how best to support their family member [126]. Finally, family members described how continued professional and informal support was vital, especially as this aided the meaning-making process and their understanding of why their family member engaged in self-harm [123].

In summary, while some research has been conducted into the support needs of people experiencing a family member's suicide or self-harm, many of these studies have also included those experiencing suicidal ideation. The needs of the latter may be quite different to those experiencing a family member's self-harm, as the majority of people with suicidal ideation will not go on to self-harm or die by suicide [172]. The specific support needs required for people experiencing a family member's self-harm is largely unknown [171]. Additionally, no study has specifically focussed on the support needs of those experiencing a family member's high-risk self-harm. Evidence is also largely lacking regarding the support needs of family members bereaved by suicide. Therefore, this thesis seeks to address this gap in the literature as it will explore the specific needs of people experiencing a family member's suicide or high-risk self-harm.

The current study

This thesis will examine how fatal and non-fatal suicidal behaviour impacts on family members in terms of their psychological, physical and psychosomatic health, as well as exploring their needs for support. Firstly, to date, no research has systematically reviewed the literature relating to the physical and psychosomatic

health outcomes following suicide bereavement. Therefore, there is uncertainty in relation to whether suicide bereavement confers a higher risk of physical and psychosomatic health outcomes compared to bereavement from non-suicide deaths. Hence, this thesis will initially focus on conducting a systematic review on this topic (Chapter 3). The majority of research in suicidology and postvention is quantitative in nature, with a lack of qualitative [51] and mixed methods studies [51, 52]. Research into the health effects of suicide bereavement is mainly quantitative in nature and focuses on psychological impacts [39, 74, 80, 173]. Qualitative research which explores not just the psychological impacts but also the physical and psychosomatic health impacts of suicide bereavement is lacking. Consequently, a mixed methods study, along with a protocol describing the methodology of the study is described in detail in Chapter 4 and 5.

Additionally, a qualitative exploration of the impact of the inquest process on family members has been relatively neglected, with two notable exceptions [106, 107]. However, neither of these research studies were conducted in Ireland, which may limit the applicability of these findings to the Irish context. This will, therefore, be the focus of Chapter 6 of this thesis, where a qualitative study will explore how suicide-bereaved family members experience the inquest process.

The psychological impact of a family member's self-harm has been researched quantitatively in terms of suicidal ideation, self-harm and suicide mortality [27, 29, 36, 134, 136, 138, 174-176], however, there is scant qualitative research on the physical or psychosomatic health impact on family members. The qualitative research on this topic focusses on the psychological impact [130, 146,

171], with no particular emphasis on the physical or psychosomatic impacts. Furthermore, some of the published research included people experiencing a family member's suicidal ideation together with people experiencing a family member's self-harm. Additionally, two studies interviewed people about the impact of caring for a suicidal family member, after their family member died by suicide [146, 171], leaving the research open to significant recall bias. Additionally, as some of the participants experienced their family member's suicide death, it is likely this affected how they subsequently thought about caring for a family member who had engaged in a previous act of non-fatal self-harm. None of the published research took into account the severity or lethality of the self-harm. As a result, participants' experiences may have differed widely. Consequently, the focus of Chapter 7 of this thesis is to explore the experiences of people following a family member's high-risk self-harm and its health impact through qualitative interviews.

1.7 Overall aims and objectives

Aims and objectives

The aim of this thesis is to examine the health effects of fatal and non-fatal suicidal behaviour on family members and how the legal process of the inquest after a suicide affects family members physically, psychologically and socially. Qualitative and quantitative methods were used in tandem to fully address this aim.

Specific objectives were:

1. To systematically review the existing literature on the physical and psychosomatic health outcomes of family members bereaved by suicide compared to family members bereaved by other causes of death.

2. To examine how people have been physically and psychologically affected by a family member's suicide.

3. To explore how suicide-bereaved family members experience an inquest using qualitative interviews.

4. To explore the experiences of people following a family member's high-risk self-harm through qualitative interviews.

The methodology used to conduct this research is outlined in detail in the next chapter. A general discussion of the findings of the four studies, the strengths and limitations of the thesis, and implications for future research and clinical practice is presented in the final chapter of this thesis.

Chapter 2. Methods

2.1 Chapter overview

The aim of this chapter is to describe the overall research design of this thesis and the rationale and justification for its use, together with a discussion of the methodological considerations of mixed methods research generally. The rationale for the two chosen theoretical frameworks used in this thesis is presented, along with a description of the methods of each study and a justification for their use. Finally, a discussion of the ethical considerations for this doctoral thesis is described.

2.2 Overview of the study design

The aim of this doctoral thesis was to examine the psychological, physical and psychosomatic impact of suicidal behaviour on family members. To meet this aim, a mixed methods study design, which prioritised the qualitative components of the study, was employed. This was done because the majority of research in the field of suicidology is quantitative in nature, where little qualitative research has been conducted to explore phenomena and processes of experiencing a family member's suicide or high-risk self-harm. Additionally, the objectives of qualitative research are different and can answer different research questions more appropriately than quantitative research. A systematic review and three empirical studies (one mixed methods study; two qualitative studies) were conducted:

- A systematic review (Study 1) was conducted to comprehensively locate, summarise and synthesise the extant literature on the physical and

psychosomatic health outcomes of family members bereaved by suicide compared to family members bereaved by other causes of death.

- A mixed methods study (Study 2) was conducted to examine how people have been physically and psychologically affected by a family member's suicide, through qualitative semi-structured interviews and thematic analysis. Quantitative data on participants' levels of depression, anxiety and stress was measured by the DASS-21 and collected as part of a larger case-control study (SSIS-ACE). A secondary objective of the study was to describe the supports required by family members bereaved by suicide.

- A qualitative study (Study 3), using semi-structured interviews and thematic analysis, explored how suicide-bereaved family members experienced the inquest process.

- A qualitative study (Study 4), using semi-structured interviews and interpretative phenomenological analysis, explored how people experienced a family member's high-risk self-harm.

2.2.1 Quantitative and qualitative research paradigms

Qualitative research and quantitative research have traditionally been viewed as distinct, with opposing paradigms (Table 1) [177-180]. The discussion of the two research approaches at the epistemological level, relating to how one gains knowledge about reality [181], has been coined as 'the paradigm wars', with

positivist research on one side and interpretivist research on the other [182, 183]. The main difference in qualitative and quantitative methods lies around the philosophical stance that each method ascribes to. On the one hand, quantitative research is based around the belief that there is one objective reality, where a fixed set of questions is usually generated to answer hypotheses [178]. Generally, speaking quantitative research is confirmatory and deductive in nature [178]. However, it is important to note that some quantitative researchers may classify their research as exploratory in nature.

Quantitative research is generally aligned with a positivist/postpositivist paradigm, whereas qualitative research is usually aligned with a constructivist-interpretivist paradigm. Positivist beliefs contend that there is only one reality which can be identified through observational and experimental methods [177]. Positivism is often a taken-for-granted epistemology adopted by quantitative researchers interested in hypothesis-driven and deductive research [184]. The main aim of positivist research is to verify a priori hypotheses, with the goal of prediction [184]. Positivism has been the most dominant research paradigm in science and is mainly aligned with quantitative research [185].

Postpositivists also believe there is one objective reality, but that individual and environmental factors can influence these realities, which is important to consider [165]. Positivists, on the other hand, accept that reality is an objective and apprehendable reality [184]. Postpositivism is underlined by theory falsification, whereas positivism is characterised by theory verification [178]. While there are some important differences between the two paradigms, they share many

similarities; both paradigms aim to provide explanation, which will lead to prediction and ultimately establish a cause-effect relationship between the variables studied [175]. Postpositivism is also mainly aligned with quantitative research.

Interpretivist quantitative research uses statistics to shed light on the unobservable data generating processes. Key components of interpretive quantitative methodology are the triangulation of data which is analysed from multiple perspectives, the integration of measurement and modelling to form a more holistic manner of discovery and thinking reflexively about the origins of the data [184]. In light of this, interpretive quantitative research can potentially produce more meaningful results that are more applicable to policy than those achieved through conventional positivist stances [184]. In terms of assessing quality, quantitative research is primarily concerned with statistical generalisability, representativeness and replicability [186]. On the other, quality in qualitative research is concerned with credibility, transferability, dependability and confirmability.

Qualitative research is an approach that generally favours detailed observation and is most interested in how participants make sense of their experiences, through a process of meaning-making [186, 187]. Qualitative research also pays close attention to the complexity of the situation, where such research tends to be conducted inductively, where one does not start out to test a hypothesis, but rather is concerned with the generation of new theories from the data. However, it is possible to conduct deductive qualitative research, where one

imposes a model on the data and looks for corroborating text to support the model. In addition, the process of the research is more important than the outcome [186]. However, it is possible that some qualitative researchers may adopt a positivist stance. The fundamental difference between interpretivist and positivist qualitative research lies around the type of questions and conclusions one wishes to draw [188]. Both types of qualitative research aim to identify details related to preferences, motivations and actions [188]. Positivist qualitative research aims to identify the propositions of these preferences or motivations that can be tested or located in other cases [188]. Examples of positivist qualitative research include attempting to document practices that lead consistently to one set of outcomes rather than another, or to identify characteristics that are commonly related to a particular policy issue [188].

Constructivism (or interpretivism) is a paradigm that is seen as an alternative to the positivist paradigm. Compared to positivism, with its singular view of reality, contructivism assumes there are multiple realities, where knowledge is socially constructed, which underlines the importance of understanding multiple viewpoints of a particular phenomenon [179]. Constructivists posit that meaning is hidden and needs to be brought to the surface using a hermeneutical approach [184]. An important differentiating aspect of constructivism is the central importance of the interaction between the investigator and the object being investigated [184]. Constructivists believe that it is only through this in-depth investigation that deeper meaning can be discovered [184]. Constructivism-interpretivism often provides the basis for qualitative research

methods. On the other hand, qualitative research is based around the belief that there is no single reality, where reality is socially constructed [177, 179].

Those who advocate for critical theory posit that reality is constructed broadly within a socio-historical context. The overarching belief of critical theorists is that one's lived experiences, while shaped by the socio-historical context, is also influenced by power relations [184]. Criticalists believe that certain groups within society hold more power or privilege over others. As a result of this, they use their research to work towards shifting this power imbalance, where the oppressed are given a voice to empower them [184]. Similarly to the interpretivism paradigm, critical theory often provides a foundational basis for qualitative research [184].

While some researchers are keen to highlight the differences between the two methodologies, others advocate that both methods can be complementary [183]. Both quantitative and qualitative researchers are concerned with observations to answer research questions, triangulating data and providing explanations for study findings [183]. In addition, both research methods require the use of analytical techniques to draw out meaning from the data. The overarching concern for both research methods is to attempt to describe complex data [183]. Pragmatism is concerned with choosing a particular methodological approach for the purpose of best answering the research questions posed and where each of the approaches co-exist [183]. Researchers have advocated for the use and appreciation of the inherent strengths of both methods, which leads to 'pragmatic researchers' [183]. Both sets of researchers are concerned with observations to answer research questions, triangulating data and providing

explanations for study findings [183]. In addition, both research methods require the use of analytical techniques to draw out meaning from the data. The overarching concern for both research methods is to attempt to describe complex data [183]. Therefore, there is a strong case for mixing both methods, which will be described in detail later in this chapter.

2.3 Rationale for choosing a mixed methods study

A mixed methods approach was chosen for the current research, as there is little qualitative research conducted in the area and it also provides insight into family members' lived experiences of suicide or high-risk self-harm. However, it is also necessary to conduct quantitative research to understand if people bereaved by suicide have a significantly increased risk of physical and psychosomatic health outcomes compared to people bereaved by non-suicide deaths. This mixed methods approach can, therefore, provide a more comprehensive understanding of the impact of a family member's fatal and non-fatal suicidal behaviour, compared to using either quantitative or qualitative methods alone [189]. This integration of methods allows one to leverage the advantages of both methods while furthering one's understanding of the phenomenon under investigation [183]. Some research questions are best answered through in-depth qualitative research methods, while hypothesis-driven, deductive research questions are best answered using quantitative methods. Suicide research has typically been dominated by quantitative methodologies that are focussed on generating explanations through the use of hypothesis-testing approaches. There has been a call for studies that focus on understanding particular phenomena related to suicide research [51].

Qualitative interviews allow participants the space to construct their own narratives of why their family member engaged in suicidal behaviour, leading to a greater understanding of the circumstances surrounding the act [190]. This effort to understand, rather than explain, particular phenomena can only be achieved through qualitative methods. However, those calling for a greater balance of quantitative and qualitative research are not advocating an either/or view, but rather for mixed methods approaches that are 'perhaps the most fruitful' [51].

Table 1: **Research paradigms used in quantitative and qualitative research**

	Ontology	**Epistemology**	**Methodology**
Positivism [178, 180, 181, 185]	Realism - objective reality exists	Facts can be separated from values	Experimental; hypothesis-driven; deductive; mainly quantitative methods
Postpositivism [178, 180, 181, 185]	Critical realism - one objective reality but this reality is imperfect	Objectivist – only accepts what can be directly observed	Experimental; falsification of hypotheses; mainly quantitative methods but can also include qualitative methods
Critical-Ideological [178, 180, 181, 185]	Historical realism – reality shaped by social, political, cultural, economic and gender values	Subjectivist – investigator and investigated are inextricably linked	Approaches tend to focus on dialogue between investigator and investigated, where reflection is encouraged
Constructivism-Interpretivism [178-181]	Relativism – reality is socially constructed	Relativist – one cannot know the ultimate truth	Reality can only be elicited through the interaction between investigator and investigated; often focused on hermeneutics and dialogue; mainly qualitative methods
Pragmatism [178-181]	Can vary – researchers likely to choose best method of enquiry to answer research question	Multiple perspectives and truths are valued to understand reality	Can be used for quantitative, qualitative or mixed methods research

2.4 Methodological considerations for mixed methods research

Researchers undertaking mixed methods research need to be cognisant of several methodological considerations, including weighting, timing, and at what stage the methods will be mixed. Firstly, it is important for researchers to decide at the outset of a project if the qualitative and quantitative components of a mixed methods study will be given equal priority or if one will be more emphasised than the other. The weighting of one's research can be related back to one's epistemological stance, the goal of the research and the research questions associated with the research. In this sense, the emphasis of the current research is the qualitative elements of this mixed methods study. This was a deliberate decision given the lack of experiential research that provides a rich description of the impact of experiencing a family member's fatal or non-fatal suicidal behaviour. The quantitative elements of this thesis have added to the overall understanding of the psychological, physical and psychosomatic health impacts of a family member's suicide or high-risk self-harm. However, it was only through qualitative research, that we were able to explore these impacts in a fuller way, while also providing an in-depth understanding of family members' specific support service needs.

Timing refers to the order in which quantitative and qualitative data are collected, analysed and utilised for the study. Concurrent timing implies that the quantitative and qualitative components of the study are collected and analysed at approximately the same time. On the other hand, sequential timing refers to either the quantitative or qualitative component of the study being collected and analysed first followed by the other methodology. These decisions are largely dictated by

one's particular research question [191]. In the current research, the quantitative data were collected before qualitative data, as part of an existing study: SSIS-ACE, but did not directly inform the direction of the qualitative data (Figure 2). However, the systematic review findings were obtained before the interview studies and provided a basis of understanding regarding some of the health issues possibly affecting those who would be interviewed for the qualitative components of the study (Figure 3).

In summary, the aim of this thesis is to explore and examine the impact of both fatal and non-fatal suicidal behaviour on family members, with a particular emphasis on physical and psychosomatic health impacts (Figure 3). A pragmatic approach was therefore taken, as this approach posits that the research questions dictated the methods chosen. It was felt that a mixed methods approach was most appropriate for this study to best answer the overall aim of the thesis more comprehensively, as opposed to relying solely on a purely quantitative or qualitative approach.

PhD Objectives	1st Year				2nd Year				3rd Year				4th Year			
	2014	2015	2015	2015	2015	2016	2016	2016	2016	2017	2017	2017	2017	2018	2018	2018
	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3
	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept
Study 1: Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review																
Register review with Prospero																
Conduct database searches																
Appraisal of study eligibility																
Data extraction of study results																
Quality appraisal of included studies																
Narrative analysis of results																
Write-up																
Study 2: What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland																
Ethical approval																
Protocol development and write-up																
Quantitative data collection (SSIS-ACE study)																
Qualitative data study (current study)																
Transcription																
Data analysis and write-up																
Study 3: How suicide-bereaved family members experience the inquest process: A qualitative study																
Ethical approval																
Data collection																
Transcription																
Data analysis																
Write-up																
Study 4: How do people experience a family member's high-risk self-harm? An interpretative phenomenological analysis																
Ethical approval																
Data collection																
Transcription																
Data analysis																
Write-up																
Thesis write-up																
Background/literature review																
Methods																
Discussion/conclusion																

Figure 2: Gantt chart of thesis

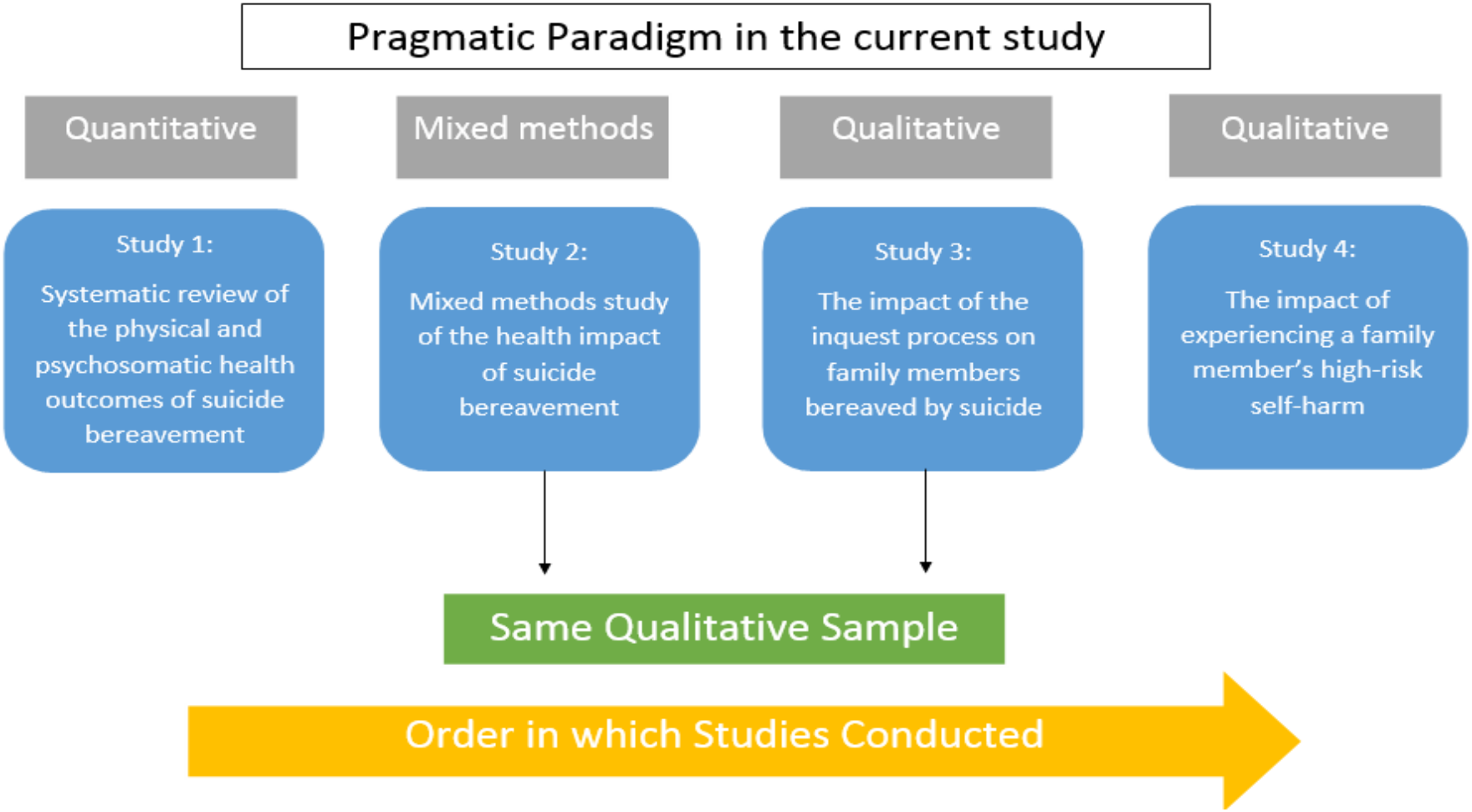


Figure 3: Overview of mixed methods study

2.5 Theoretical framework

The theoretical framework for this thesis was based on two models: (1) '*The Social-Ecological Model*' [192] and (2) '*The Growing Flower Model of Reintegration after Suicide*' [193]. The latter model has the potential to be applied to the experiences of people who are confronted with a family member's high-risk self-harm, in addition to suicide-bereaved family members.

2.5.1 The Social Ecological Model

The Social Ecological Model is a well-established model that has been previously used to understand and tackle various public health issues, including diet [194], physical activity [195], HIV/AIDS [196], bullying [197] and violence [192]. This model is primarily concerned with providing a framework to understand the complex interaction and interplay between individual, relationship, community and societal factors [192]. Each of the four components of the model overlap, illustrating how the factors influence and impact one another (Figure 4) [192].

This model is predominantly interpreted by examining how factors at the higher level of the model (i.e. societal) impact on the lower levels of the model. However, I have chosen to interpret the model in the opposite direction and have done so for a number of reasons; fatal and non-fatal suicidal behaviour is something that predominantly and initially impacts on close family members and friends. It is after this initial individual impact, where we see a 'ripple effect' towards the higher levels of the Social Ecological Model to social/work networks and the wider community. Therefore, the impact of fatal and non-fatal suicidal

behaviour will most strongly focus on individual impacts and move towards impacts on relationships, communities, and finally society at large.

The model is divided into four levels that can provide an insight into experiences of familial fatal and non-fatal suicidal behaviour. The first level of the model is individual, where factors such as genetics, gender, age, kinship and socioeconomic status may influence how individuals are impacted by a family member's fatal or non-fatal suicidal behaviour. Evidence suggests that experiencing a parent or siblings fatal and/or non-fatal self-harm increases the risk of own suicidal behaviour [29, 174]. The second level of the model relates to interpersonal relationships, including family, friends and one's social network. The evidence clearly demonstrates that having adequate support from family and friends following a family member's suicide or self-harm may ameliorate some of the negative health and social consequences for the family member [112]. The third level relates to the community and the setting in which social relationships occur. Research indicates that perceived stigma from the community increases the risk of suicidal thoughts and self-harm in suicide-bereaved family members [111]. Research also indicates that people bereaved by suicide perceive stigma more intensely than people bereaved by sudden natural and sudden unnatural deaths [91]. Finally, the fourth level examines broader societal factors, which are closely linked with community factors. In the case of suicidal behaviour, the fourth level refers to the cultural norms around the behaviour and how it is perceived by society as a whole. The broader cultural and societal norms of suicidal behaviour can impact on family members experiencing suicidal behaviour, with recent research indicating that they experience more shame, responsibility, guilt than

people bereaved by sudden natural and sudden unnatural deaths [91]. Furthermore, the inquest process can be viewed as the societal response to a suicide death, as family members bereaved by sudden, violent and unnatural deaths in many countries previously or currently in the British Commonwealth, are subjected to the inquest process. While the inquest is the societal response to suicide, it still has impacts that span the lower levels of the model, culminating most strongly in individual impacts. Overall, this model is useful for informing our understanding of the impact of fatal and non-fatal suicidal behaviour on family members.

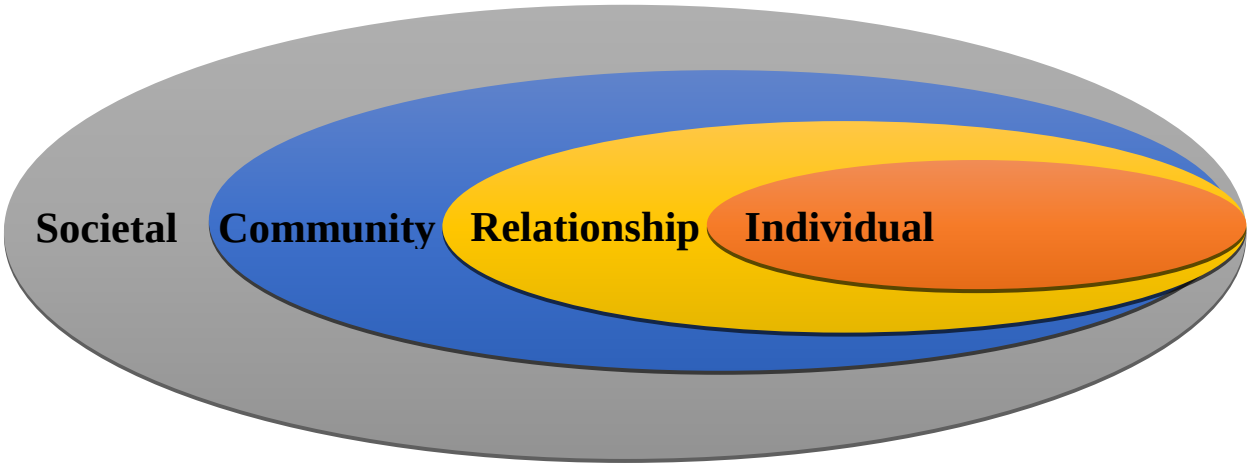


Figure 4: Social Ecological Model

2.5.2 The Growing Flower Model of Reintegration after Suicide

The Growing Flower Model of Reintegration after Suicide has four levels of impact, similarly to the Social Ecological Model. This model was also chosen as it provides a clear illustration of the specific obstacles faced by many people bereaved by suicide, beginning with the event of the suicide and moving in a clockwise direction

towards the last theme, which relates to growth and meaning-making. While there is no framework to illustrate the impact of a family member's (high-risk) self-harm, many aspects of the Growing Flower Model can be related back to this experience, as well as suicide bereavement. This is not surprising given the broadly similar impacts discussed by people experiencing fatal and non-fatal suicidal behaviour. Additionally, many family members experiencing (high-risk) self-harm express emotions, with many of them strikingly similar to people experiencing suicide bereavement. Similarly, they may also search for explanations for the self-harm and finally may develop meaning-making after the event.

This model was originally created to describe the four levels of reintegration after suicide that family members often experience, as well as eight prevalent themes surrounding this integration [193]. However, the scant literature on how people experience a family member's self-harm indicates that their experiences are broadly similar to the experiences of suicide-bereaved family members. This is true in relation to the psychological, physical and psychosomatic health impacts, as well as their needs for informal and formal supports. Therefore, this model can be used to conceptualise experiences of the suicide-bereaved as well as those experiencing a family member's high-risk self-harm. The model has four levels of integration; (1) the bereaved person; (2) their family; (3) the social network, including friends, neighbours, and acquaintances, and (4) the systems in the society, including the police force and social care. The model posits that there is an interaction between each level which is represented by the dotted lines [193]. The model presented below in Figure 5 has been adapted from Postuvan et al [193]:

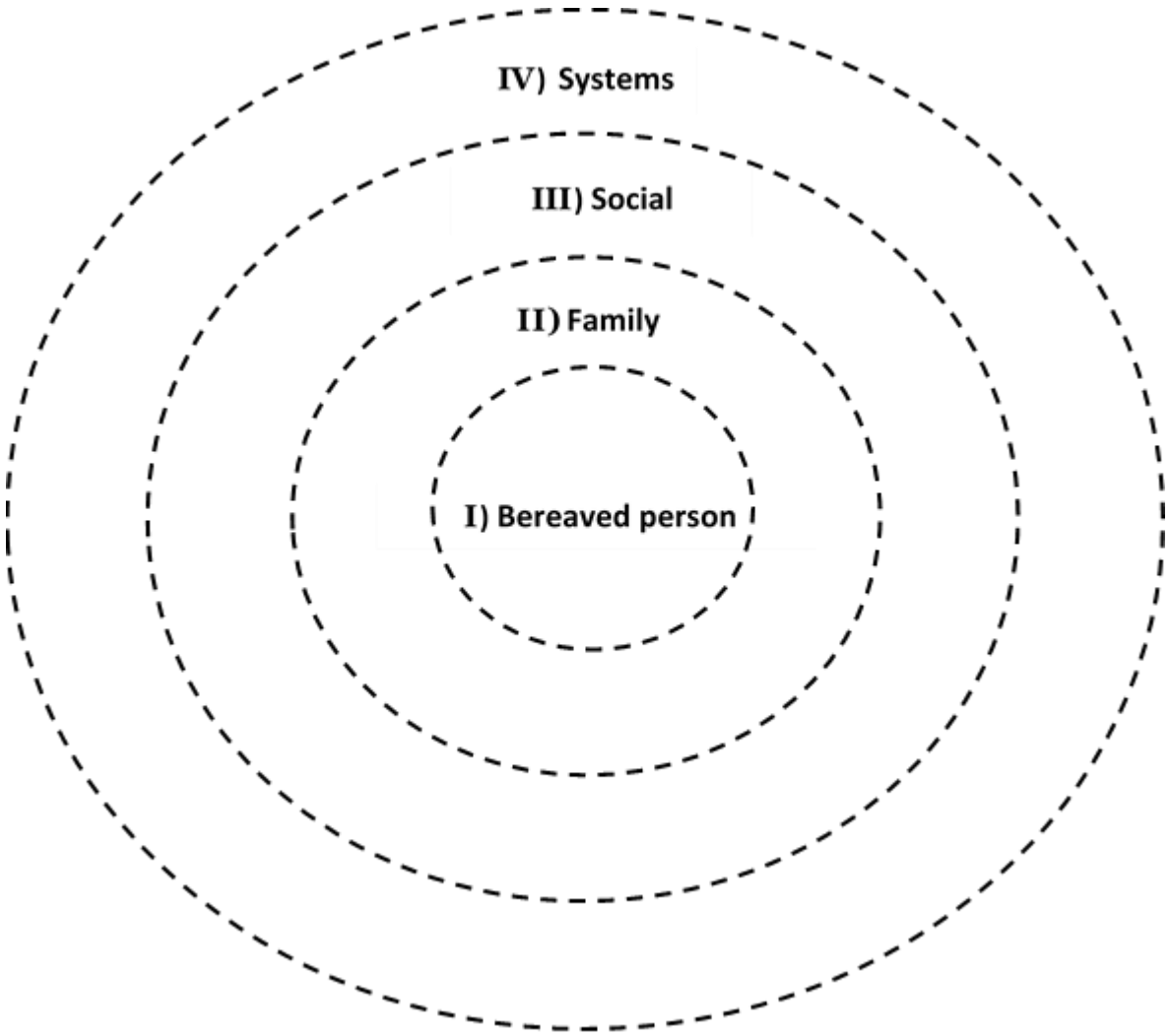


Figure 5: Levels of reintegration after suicide, adapted from Postuvan et al (2017)

Each level impacts on eight themes related to the reintegration process, as shown in Figure 6 below. Firstly, the model posits that the occurrence of the suicide is the starting point for the bereaved family member's journey through grief. Aspects of the suicide, such as if they found their family member's body, or if they were told the news by others, may influence how they experience the event. People experiencing a family member's self-harm also go through a similar process of discovery, including whether they found their family member or from whom they

heard about the self-harm [122, 123]. Additionally, the method of suicide or self-harm chosen and whether the body was damaged can also be important for family members [122]. The presence or absence of other family members and members of the emergency and health services can also change the dynamics of the event for family members.

Secondly, the funeral and associated rituals can also serve as an important aspect of grieving for family members. Other rituals, including people offering their condolences by sending cards, may be a crucial aspect for family members. These rituals can be important for meaning-making for suicide-bereaved family members. Conversely, people experiencing a family member's self-harm do not have these formal rituals and may need to engage in their own private rituals for meaning-making. Society has norms in how we respond to people that are physically ill or unwell. These norms generally consist of people sending cards, messages or flowers wishing them a full recovery. However, it is unclear if these social norms extend to people experiencing mental health difficulties or engaging in self-harm, and their family members. These rituals may also not occur due to family members concealing the self-harm or others not responding to the mental health difficulties or self-harm due to stigma. Therefore, a lack of rituals may play a part in the process of people experiencing a family member's self-harm.

The third theme relates to the emotions experienced, which are broadly similar for people bereaved by suicide and people experiencing a family member's self-harm. Common emotions include shock, anger, guilt, extreme sadness, shame, fear and helplessness [123]. These emotions can be expressed in a positive sense by

confiding in other family members and friends or by engaging in activities such as physical activity or hobbies to distract family members. However, sometimes family members feel unable to speak to others and can engage in unhelpful coping mechanisms, including substance abuse or self-harm.

The fourth theme of the model relates to how others perceive the suicide and their reaction to the suicide. Guilt and blame are often pervasive in those bereaved by suicide, and can be further compounded by others in the social circle offering clichés, such as “everything will be ok” and that “everything happens for a reason”. Related to this, suicide-bereaved family members have high levels of perceived stigma, shame, responsibility and guilt compared to family members bereaved by sudden natural and sudden unnatural deaths [91]. Similarly, people experiencing a family member’s self-harm can also feel guilt and a sense of shame as they sometimes try to conceal the self-harm due to others perceived negative responses, leading to feelings of stigmatisation [122, 131]. These insensitivities may cause people experiencing fatal or non-fatal suicidal behaviour to withdraw from their social circle, leaving them isolated, with feelings of self-stigmatisation.

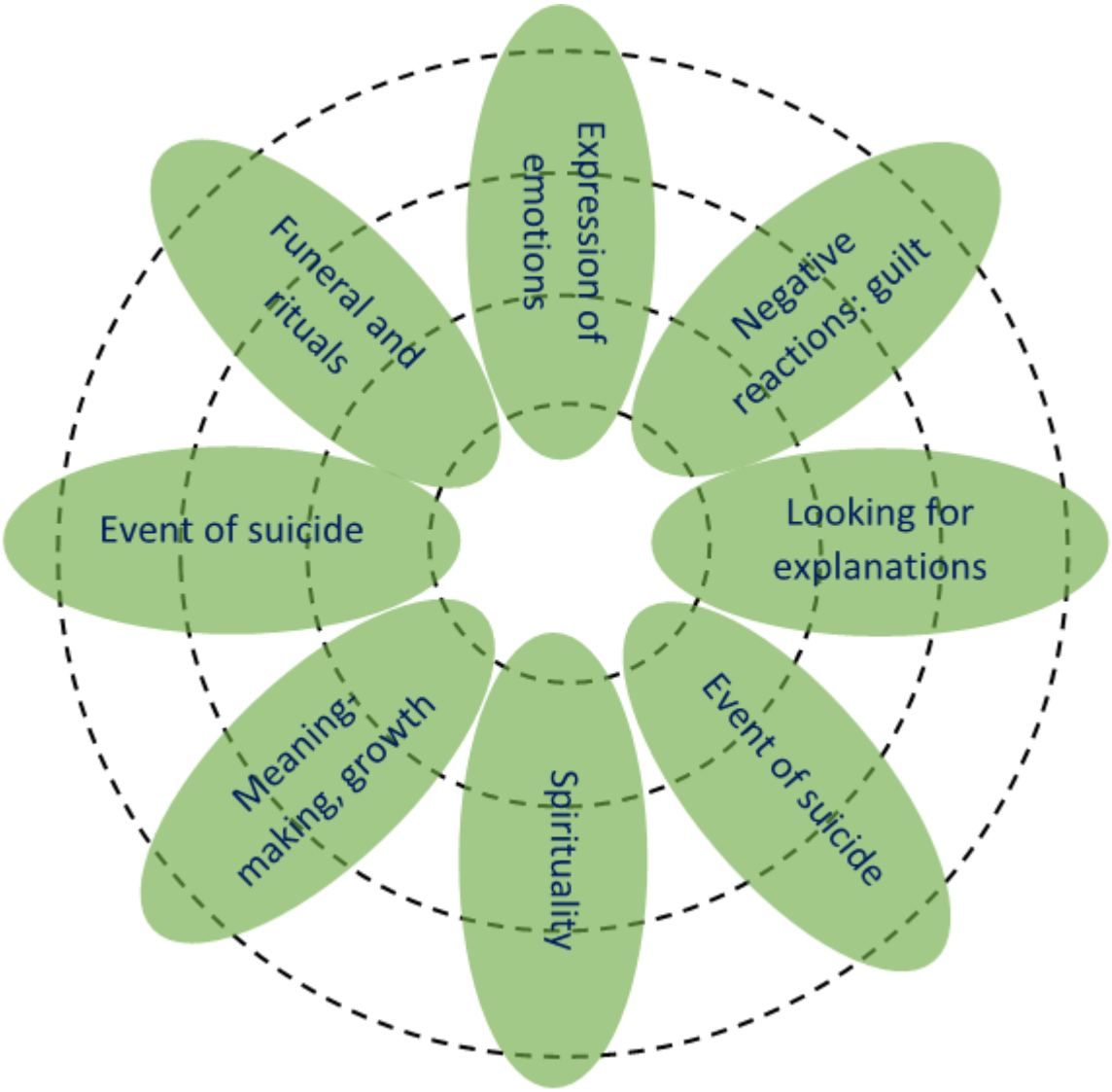


Figure 6: Themes of the reintegration process, adapted from Postuvan et al (2017)

The fifth theme relates to how the suicide-bereaved often engage in trying to understand why the deceased died by suicide. Some family members hypothesise that the suicide may have been as a result of an inherent vulnerability, feelings of intense shame or anger and perfectionism, leading to feelings of perceived inability to meet the high standards they set for themselves [198, 199]. This search for explanations or sense-making can also be characterised by constant

rumination about the death, which can be damaging to the family member. People experiencing a family member's self-harm also undergo a process of reflection and meaning-making, which can sometimes serve to reinforce negative feelings of guilt and self-blame [122, 126].

The sixth theme emphasises the importance of support for family members, whether it is formal or informal support. The Growing Flower Model emphasises that each of the four levels of the model can provide different types of support, where the family and social network can provide informal support and the systems level can provide professional support. The existing literature indicates that family members experiencing fatal [111, 112, 200] and non-fatal [122, 123, 131] suicidal behaviour require support, not just in the immediate aftermath but also in the long-term. Often, this need for support is not met, thereby increasing feelings of stigma which may compound family members' increased risk of suicidal ideation and self-harm [70, 111, 112].

The seventh theme relates to spirituality which can be expressed in many different formats by the bereaved. For some, it can be closely connected with their religious views, while for others can take the form of vivid dreams or parapsychological phenomena, such as reporting that they saw or heard the deceased. These spiritual aspects can offer comfort to the bereaved during the grieving process. No research has explored how religiousness or spirituality impacts how people make sense of a family member's self-harm.

The final theme relates to meaning-making, personal growth and identity changes. The experience of suicide bereavement can result in the bereaved

questioning or losing the role and identity they had before the death. Some can see this change as positive, which is termed posttraumatic growth. The extant literature also suggests that people experiencing a family member's self-harm can also undergo changes to their perceived identity. Particularly, parents often question their parenting skills and abilities, wondering if their parenting style 'caused' their child's self-harm [128]. They often make changes to their parenting style following the self-harm in order to be more effective parents [128]. However, specific research exploring meaning-making after a family member's self-harm is lacking.

2.6 Methods of Study 1: Systematic review of the physical and psychosomatic health outcomes of suicide bereavement

2.6.1 Aim

The aim of the first study was to systematically review the literature on the physical and psychosomatic health outcomes in family members bereaved by suicide compared to family members bereaved by other causes of death.

2.6.2 Data collection

The data sources for this study were all relevant published primary articles on the topic. MEDLINE, EMBASE, CINAHL, and PsycINFO were searched for relevant articles published between 1st January 1985 and 27th March 2017. There were slight modifications to the search strategy for the different databases. Reference list searching was employed for all included articles. In total, 24 articles meeting the inclusion criteria were located by the search.

2.6.3 Data Analysis

The quality of each included article was assessed using a modified version of the Newcastle Ottawa Scale (NOS). The quality assessment of included articles was done independently by two authors. Because of the heterogeneity of outcomes examined, narrative synthesis was used to analyse the data extracted from each of the individual studies for the systematic review. A comprehensive description of the systematic review methods is presented in Chapter 3.

2.7 Methods of Study 2: Mixed methods study of the physical and psychological health effects of suicide bereavement on family members

2.7.1 Aim

The primary aim of the second study was to examine the psychological, physical and psychosomatic health effects of suicide bereavement on family members, using mixed methods. A secondary aim was to describe the support services required for suicide-bereaved family members.

2.7.2 Data collection

SSIS-ACE formed the basis for the participant recruitment for Studies 2, 3 and 4. Data collection for Study 2 is outlined below. SSIS-ACE was a retrospective case-control study conducted to improve understanding of and identify specific risk and protective factors associated with, suicide in Ireland. Two interlinked case-control studies were conducted as part of the SSIS-ACE study. The first compared suicide cases to matched GP controls; the second compared suicide cases to people who

presented to Emergency Departments in Cork, Ireland with an act of non-fatal high-risk self-harm. Dr Larkin, who was the senior researcher on the SSIS-ACE study, and an advisor of this thesis, identified suicide decedents and their next-of-kin via screening coroner's records. Open (undetermined deaths) and narrative verdicts were also screened and were included if they met the Rosenberg criteria for a probable suicide. Dr Larkin contacted the next-of-kin of included cases to firstly verify their needs for support and to inform family members of the opportunity to take part in a psychological autopsy study.

The suicide-bereaved participants who took part in the SSIS-ACE study and who gave written consent for further follow-up were then recruited for the qualitative component of this study. In order to recruit participants for the purposes of this thesis, I re-approached family members from the SISS-ACE study on average 17 months later to participate in the qualitative component of this mixed methods study. Family members bereaved by suicide were contacted in the first instance via letter about the current study. Following receipt of the letter, participants were contacted via telephone to initially determine what support needs family members needed and to offer proactive facilitation of such support. Secondly, their interest in participating in the follow-up study was then verified. Letters were sent to twenty-five participants, with six refusing to take part. Nineteen family members agreed to participate but one person did not consent for the interview to be audio-recorded and was therefore excluded from the qualitative analysis.

Quantitative data used in this study were collected as part of the SSIS-ACE study. Data on participants' wellbeing, as measured by the Depression, Anxiety and Stress Scale (DASS-21), was completed at the end of the SSIS-ACE psychological autopsy study and forms the quantitative component of this study. The quantitative data was used to supplement the qualitative interview data and was collected from July 2014 to May 2016.

2.7.3 Data analysis

The eighteen qualitative interviews with family members bereaved by suicide were analysed using thematic analysis. This method was chosen for a number of reasons. Firstly, it is a relatively flexible methodology, which is compatible with a range of research questions and is not theoretically bounded [201]. The latter point is in stark contrast to Grounded Theory and interpretative phenomenological analysis (IPA), which seek to identify patterns in the data that are theoretically bounded.

Thematic analysis provides a rich and detailed description of the data [201, 202], where coding is used to identify patterns across the data [203]. Additionally, thematic analysis works well when analysing large qualitative datasets [202]. Thematic analysis is also advantageous for showcasing any similarities and differences between cases [202]. Thematic analysis is most suitable for research that is more applied in nature, where researchers are keen to provide a comprehensive and sophisticated level of analysis, which can still be presented in a readily accessible way for non-academic audiences [203]. This study is particularly concerned with understanding the health and support service needs of people

bereaved by suicide in Ireland, as no study to date has done so comprehensively. It is hoped that this research will contribute to providing evidence-based policy recommendations in order to improve the lives and health of people experiencing a family member's fatal or non-fatal suicidal behaviour. Therefore, it is imperative that we selected a method that could provide a rich and comprehensive description of the data, while also providing clear, focused and unambiguous findings. Therefore, these lines of enquiry were most suited to thematic analysis [201, 203].

Descriptive statistics were used to present information on a range of variables, including the age, gender and marital status of the suicide decedents and whether there was a history of self-harm prior to the death. Similarly, descriptive statistics were also used to illustrate the age and gender of the family members and their relationship to the deceased. As the data were non-normally distributed, median scores and interquartile ranges (IQRs) were computed to describe the DASS-21 subscales and total score. A Mann-Whitney U test was used to identify any potential differences in well-being scores for males and females and for people bereaved by a hanging or non-hanging suicide. These two categories were chosen as it was not possible to run the analysis by each of the methods of suicide due to small numbers in some of the groups.

2.8 Methods of Study 3: Exploring how family members bereaved by suicide experience the inquest process

2.8.1 Aim

The aim of the third study was to explore how people bereaved by suicide experience the inquest process in Ireland.

2.8.2 Data collection

As part of the qualitative interviews with suicide-bereaved family members for Study 2, participants were also asked about how they experienced the inquest process, which formed the basis for Study 3.

2.8.3 Data analysis

Similarly to Study 2, data for Study 3 was analysed using thematic analysis. Grounded Theory would have been an inappropriate method of analysis for this study as it was not formulated using a Grounded Theory framework, nor was it focussed on generating theory related to family members' experiences of the inquest process. IPA is primarily concerned with understanding the meaning people attach to their experiences. This study was not concerned with exploring in detail the individual, personal and lived experience of suicide-bereaved family members understanding the meaning they ascribe to the inquest process. Additionally, this study was not developed from a phenomenological, hermeneutic and idiographic focus, which are the three facets required to conduct an IPA study [187]. Rather, this study sought to explore how family members experienced the inquest process, with a view to understanding what could be done to improve the inquest process to reduce undue distress caused to family members. Nor, was the focus on each case in a singular sense, which is a key facet of IPA. This research question was not inductive in a way that is required for IPA, rather, the research objectives were formulated by the extant literature on the topic. IPA requires researchers to conduct research that does not seek to corroborate or negate hypotheses based on the existing literature on the topic.

Thematic analysis was also chosen as it a flexible method, that is not tied to one particular epistemological stance, as is the case with approaches such as discourse analysis and IPA [201]. IPA is tied to a phenomenological approach and discourse analysis is tied to a social constructionist approach. Thematic analysis can be applied to any of the major ontological, epistemological and theoretical frameworks of qualitative research [187].

2.9 Methods of Study 4: How do people experience a family member's high-risk self-harm?

2.9.1 Aim

The aim of the fourth study was to explore how people experience a family member's high-risk self-harm.

2.9.2 Data collection

People who experienced a family member's high-risk self-harm who took part in the SSIS-ACE study and consented for further follow-up (n = 15) were approached for this qualitative study that formed the basis for Study 4. High-risk self-harm was operationalised as using a high-risk self-harm method (i.e. attempted hanging, jumping, drowning). Participants were also eligible for inclusion if the family member's self-harm act did not meet the criteria for high-risk but there was a clinical impression of high suicide intent. Participants were contacted in the first instance via telephone about the current study. Up-to-date information on participants' addresses was not available, therefore the telephone contact served to verify this information and introduce the study. Three participants were uncontactable by phone and it was therefore not possible to send introductory

letters to these participants. Letters were sent to twelve participants, with three refusing to take part in the study. Nine interviews were conducted with individuals experiencing a family member's high-risk self-harm, yielding a response rate of 75%.

2.9.3 Data analysis

IPA was chosen to analyse the nine interviews with people who experienced a family member's high-risk self-harm. IPA is concerned with exploring in detail an individual's lived experience, where the researcher seeks to understand how participants make sense of their personal world [187]. It was crucial that this research had a phenomenological approach, in order to understand participants' personal perception of their family member's high-risk self-harm, as opposed to providing an object statement about the event itself [187]. IPA is especially useful where one is concerned with novelty, complexity and process [204]. This research is novel; no research has explicitly explored how an episode of high-risk self-harm affects family members' psychological, physical and psychosomatic health. IPA is also valuable when the topic under investigation is complex, puzzling and emotionally charged. No research exists exploring how people experience a family member's high-risk self-harm. Additionally, psychosomatic health experiences, in particular, are complex as they are inextricably linked with mental health experiences. Research suggests that those experiencing the suicidal behaviour of a family member experience higher levels of stigma [91], which increases the risk of adverse mental health outcomes, including suicidal thoughts and self-harm [111]. Therefore, research into the impact of suicidal behaviour on family members requires an approach that can explore individual subjective experiences is vital

[205]. IPA has a major idiographic focus, where there is a commitment to detailed, thorough and systematic analysis, achieved through the use of small sample sizes. IPA is also committed to understanding how contextual and socio-historical factors shape experiences and the meaning we ascribe to experiences. Furthermore, the hermeneutic circle, which is another key facet of IPA, encourages the researcher to examine 'the whole in light of its parts, the parts in light of the whole, and the contexts in which the whole and parts are embedded' [206]. Specifically for research into suicidal behaviour, it is crucial to consider how shame, stigma, rejection, and isolation impacts on how one experiences a family member's high-risk self-harm. Research suggests that those experiencing the suicidal behaviour of a family member experience higher levels of stigma [91], which increases the risk of adverse mental health outcomes, including suicidal thoughts and self-harm [111]. Therefore, this study required an analysis method that takes into account and seeks to understand the experiential complexities of experiencing a family member's high-risk self-harm, through a phenomenological, hermeneutic and idiographic focus.

Thematic analysis has a number of similarities to IPA and the final IPA and thematic analysis can look broadly similar. While IPA is concerned with the meaning an individual ascribes to an event or process, thematic analysis can also be suitable for research questions that involve experiences. However, IPA, together with its idiographic focus is most suited to research exploring meaning and lived experience, whereas thematic analysis is most appropriate for seeking to understand patterned meaning across the data-set [207, 208]. Given a larger

sample size, without the central phenomenological and idiographic focus, this research could also have been analysed using thematic analysis.

2.10 Ethical considerations

Ethical approval for the empirical studies in this thesis was obtained from the Clinical Research Ethics Committee of the Cork Teaching Hospitals (Appendix 1). The four principles of medical ethics [209], respect for autonomy, beneficence, non-maleficence, and justice were used as a guiding framework to be cognisant of the ethical considerations for this research, as follows:

2.10.1 Respect for autonomy and justice

In order for people who experienced a family member's suicide or high-risk self-harm to be included in this doctoral study, participants must have provided written informed consent for future follow-up. This written consent was obtained at the conclusion of the SSIS-ACE study. It was explained to participants at the conclusion of the interview for the SSIS-ACE study that the written consent would only allow researchers in the National Suicide Research Foundation (NSRF) to contact them if future research opportunities arose and it did not mean that participants were consenting to take part in any future research.

Participants who gave their written informed consent at the conclusion of the SSIS-ACE study were contacted in relation to the research in the current doctoral thesis. It was explained to the participants that this was a follow-up study to the SSIS-ACE study but, it was emphasised that there was no obligation to participate. At this point, family members were offered facilitation of support,

regardless of whether they chose to participate in the follow-up study. Participants who agreed to take part were given detailed information sheets outlining the research and written informed consent was obtained. Participants were advised that they could withdraw their participation at any time, including after the conclusion of the interview.

It was explained to participants that confidentiality would be maintained within the research team, except if the participant disclosed child abuse or threats to harm oneself or another person. All audio recordings and transcribed interviews were saved to a double encrypted password protected computer. Hard copies of the signed consent forms have been stored in a securely locked cabinet within the NSRF offices. Finally, a small number of participants requested to be sent a summary of outcomes related to the study. This feedback has been distributed to all participants who requested it.

2.10.2 Beneficence and non-maleficence

Due to the family history of suicidal behaviour, people experiencing a family member's suicide or high-risk self-harm are at increased risk of suicidal behaviour themselves [34]. A large body of evidence exists which highlights the benefits of research participation for people experiencing a family member's suicidal behaviour, while also showing that asking about suicidality does not induce or increase suicidal ideation or suicidal behaviour [68, 210-216]. I undertook specialised in-house training from the NSRF to identify acute suicidality indicators and respond to distress in the context of telephone and face-to-face contact with participants. As previously stated, each family member contacted was offered

facilitation of support, regardless of whether they chose to take part in the research or not. AS had supervision sessions after each interview with the Principal Investigator of this study, Professor Ella Arensman. Professor Arensman is a trained psychotherapist and was available to liaise with participants or to facilitate referrals if required.

2.11 Summary of this chapter

This chapter provided an overview of the study design utilised and also a discussion of the major paradigms in research. The rationale and methodological considerations for a mixed methods approach were discussed. Two theoretical frameworks were used for this thesis; the *Social Ecological Model* and the *Growing Flower Model of Reintegration after Suicide*. The aim of the four studies described in this chapter was to develop the evidence base of and examine the health effects of suicide bereavement, the impact of the inquest process on family members and finally and how people experience the high-risk self-harm of a family member. A systematic review and a narrative synthesis, semi-structured interviews and questionnaire-based data, using qualitative and quantitative methods and two qualitative studies were used to address these study aims. Finally, the ethical considerations pertinent to this research, including respect for autonomy and justice were discussed.

Chapter 3. Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review

AILBHE SPILLANE

CELINE LARKIN

PAUL CORCORAN

KAREN MATVIENKO-SIKAR

FIONA RIORDAN

ELLA ARENSMAN

Published as: Spillane A, Larkin C, Corcoran P, Matvienko-Sikar K, Riordan F, Arensman E. **Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review.** *BMC Public Health* 2017; **17**(1): 939.

3.1 Abstract

Background:

Little research has been conducted into the physical health implications of suicide bereavement compared to other causes of death. There is some evidence that suicide bereaved parents have higher morbidity, particularly in terms of chronic illness. This systematic review aims to examine the physical and psychosomatic morbidities of people bereaved by a family member's suicide and compare them with family members bereaved by other modes of death.

Methods:

MEDLINE, EMBASE, CINAHL, and PsycINFO were searched from 1985 to February 2016. The search was re-run in March 2017. Peer-reviewed English language articles comparing suicide-bereaved family members to non-suicide bereaved family members on measures of physical or psychosomatic health were eligible for inclusion. Cohort, cross-sectional, case-control and cohort-based register studies were eligible for inclusion. A modified version of the Newcastle Ottawa Scale was used for quality assessment. Results were synthesised using narrative synthesis.

Results:

The literature search located 24 studies which met the inclusion criteria. Seven studies found statistically significant associations between physical health and suicide bereavement. Five of the studies found that suicide-bereaved family members were more likely to experience pain, more physical illnesses and poorer general health. They were also at increased risk of cardiovascular disease, hypertension, diabetes and chronic obstructive pulmonary disease. In contrast, another study in Denmark found that those bereaved by suicide had a lower risk of a number of physical health disorders, including cancers, diabetes, cardiovascular and chronic lower respiratory tract disorders compared to those bereaved by other causes of death. Additionally, a further study conducted in the United States found that suicide-bereaved children visited a GP less frequently than non-suicide bereaved children.

Conclusions:

Review findings are relevant for clinicians working with people bereaved by suicide as they highlight that such clients are at increased risk of several adverse physical health outcomes. Future research should examine health risk behaviours of suicide-bereaved and non-suicide bereaved family members as they may confound the association between exposure and outcome.

3.2 Background

Bereavement is a significant stressor that can initiate or compound existing mental and physical disorders [217]. Grief is a reaction to bereavement, encompassing thoughts, feelings, behaviours and physiological changes which may fluctuate and change in intensity over time [218]. Over 800,000 people die by suicide worldwide every year, leading to an estimated 45-500 million people experiencing suicide bereavement annually [9, 80]. Suicide has an emotional impact on those bereaved but it also has a societal impact, in terms of economic effects [219]. While a number of studies have considered the economic impact of suicide [220-222], it is important to understand the individual effect of suicide bereavement in terms of survivors' physical and psychosomatic health symptoms. Psychosomatic symptoms can be defined as subjective physical complaints (e.g. headache, stomachache, dizziness) and psychological complaints (e.g. feeling low, irritability, nervousness, difficulty in getting to sleep) without any known organic disease [53].

Strong links have been established between psychological health, psychosomatic health [223] and physical health [224]. Depression and depressive symptoms increase the risk of both prevalent and incident diabetes [225-227]. Both chronic and acute stress increases the risk of incident coronary heart disease, with inflammation being the most probable mechanism underlying this association [228]. It is also thought that lifestyle choices, including cigarette consumption and social interactions are possible mediators. However, other important mediators include socio-economic status and access to appropriate medical care [224].

There have been mixed results regarding how suicide bereavement differs from other forms of bereavement [113, 229]. A seminal review [113] posited that suicide bereavement can be differentiated by three over-arching themes. Firstly, the qualitative aspects of grief may be different, with those bereaved by suicide experiencing higher levels of guilt, blame, responsibility and rejection. Secondly, social processes may differ for those bereaved by suicide, where they feel more isolated or stigmatized due to their loved one's suicide. Finally, a pre-existing dysfunctional family environment may have contributed to the development of suicidal thoughts and behaviour in the deceased. This dysfunction coupled with the suicide may contribute to the occurrence of psychiatric conditions amongst the surviving family members.

Also, people bereaved by suicide are at increased risk of engaging in suicidal behaviour themselves [28]. Researchers have put forward several explanations as to why those bereaved by suicide are at particular risk of suicidal behaviour. Firstly, it has been posited that the intrafamilial transmission of suicidal behaviour may be partly explained by genetics [27, 175]. Research indicates that proband self-harm increased the odds of offspring self-harm by nearly 5-fold, when controlling for a number of factors including baseline history of self-harm [175]. Some research suggests that the intrafamilial transmission of impulsive aggression, childhood maltreatment and mood disorder may be possible mediators [175]. However, the exact mechanism underlying this genetic transmission is still unclear. Nonetheless, the research conducted in this area is limited to family, twin and adoption studies, which have been mainly retrospective in nature. Additionally, these studies have not been designed to identify specific genes related to suicidal behaviour.

In addition, social stigma and blame represents a significant challenge for those bereaved by suicide, which may motivate some families to conceal the cause of death [108, 114]. People bereaved by suicide are at increased risk of suicide, depression, substance abuse, complicated grief and feelings of shame and guilt [65, 84, 113, 230]. They are also at increased risk of negative physical outcomes, including cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), hypertension, diabetes and pancreatic cancer [82, 231]. While it is important to consider such specific physical health conditions, it may take many years for such conditions to develop. Therefore, it is also critical to consider somatic and psychosomatic symptoms and complaints which may be more likely to be present in the short-term following bereavement [76, 101, 232, 233].

To date, a synthesis of research on the effects of suicide bereavement on physical health problems and psychosomatic symptoms has not been conducted. The rationale for this review is to contribute to the evidence around the societal impact of suicide bereavement as borne by the families and health services, as well as informing clinicians who support those bereaved by suicide. The population of interest is bereaved family members and the exposure of interest is suicide bereavement. Therefore, people bereaved by suicide will be compared to people bereaved by other causes of death to examine any differences in physical and psychosomatic health between the two groups. The aim of this paper is to examine the physical and psychosomatic morbidities of people bereaved by a family member's suicide compared with family members bereaved by other modes of death.

3.3 Methods

This review was conducted by adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist [234]. The PRISMA checklist has been completed (see Appendix 2). The review protocol has been registered on PROSPERO, registration number CRD42016030007.

3.3.1 Search strategy

MEDLINE, EMBASE, CINAHL, and PsycINFO were searched for articles published between 1st January 1985 and 15th February 2016. Four articles were also identified from the reference lists of other included articles. Searching was re-run on 27th March 2017 to locate additional articles published in the interim (n = 666). This search found one recently published study that met the study inclusion criteria. The following MeSH terms were exploded to define exposure: "suicide", "bereavement", "genetic predisposition to disease" and "family characteristics". Searches for the following keywords were also run to define exposure: "grief", "familial", "family history" and "genetic predisposition". The following MeSH terms were exploded to define the population of interest: "family" and "friends". The term "friends" was included in order to ensure inclusion of all relevant articles that may have included family members also. The term "survivors" was not exploded as it would have included survivors of terminal illness and long-term HIV survivors. Searches for the following keywords were also run to define the population: "relative*", "parent*", "mother*", "father*", "sibling*", "offspring*", "child*", "brother*", "sister*", "family", "friend" and "survivor*" (see Appendix 3). Searches were limited to English language articles only and articles published from 1985 to

15th February 2016 for the first search. As previously stated, the search was re-run in March 2017. There were slight modifications to this search strategy when searching other databases, where needed/appropriate. Reference list searching was employed for all included studies. The search strategies used for each of the databases is provided in Appendix 3. Among the full-texts of articles retrieved, sixty were subsequently excluded. The citations of these articles along with the reasons for their exclusion are provided in Appendix 4.

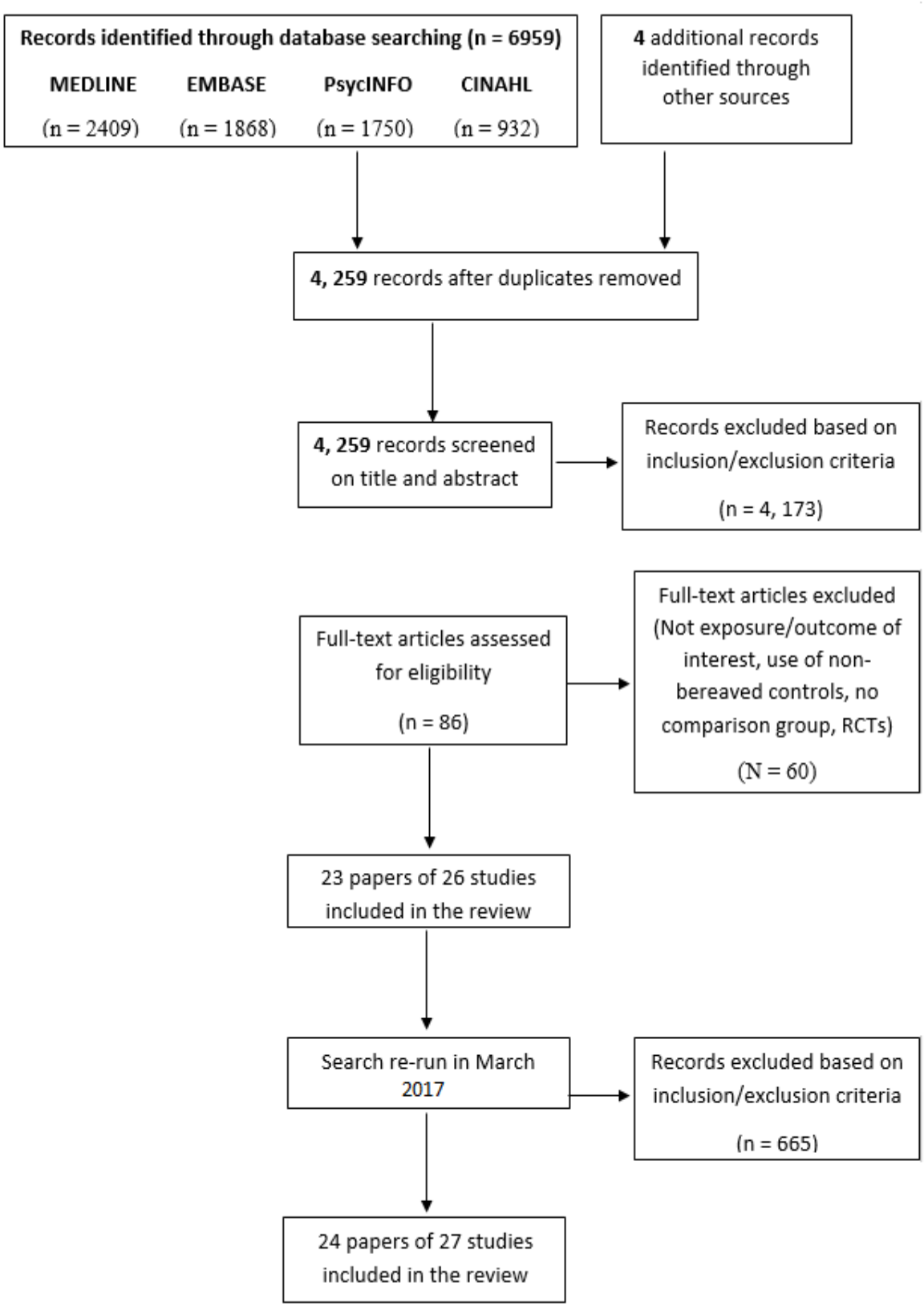


Figure 7: PRISMA flow diagram illustrating search process for systematic review

3.3.2 Inclusion criteria

Studies that met the following eligibility criteria were included in the review: (1) the population of interest comprised family members bereaved by suicide, including those related by blood and also including spouses; (2) controls were family members bereaved by a non-suicide death; (3) authors specified at least one physical or psychosomatic health outcome; (4) original cross-sectional, case-control, cohort and registry-based studies.

3.3.3 Exclusion criteria

Studies that exclusively used non-bereaved controls as the comparison group were excluded, as it is impossible to say if any negative health effect observed is attributable to suicide bereavement or to bereavement in general [80]. Case reports, cases studies, reviews, randomised controlled trials and studies with no control groups were excluded. If multiple articles meeting the inclusion criteria were published based on the same study, the article(s) containing the most complete or new information was used.

3.3.4 Data collection and data extraction

The first author (AS) conducted the initial searches and screening process. Three authors (AS, CL and KMS) screened the full-text articles to assess for eligibility; disagreements were discussed and resolved with a fourth reviewer (EA). One author who was contacted regarding missing relevant information provided further analyses to meet the inclusion criteria for this review [235]. One author (AS) extracted the following information from relevant articles:

- Author and publication details
- Location/setting
- Study design
- Population/exposure/comparison group/outcome
- Methodological considerations (sample size, duration of participation and loss-to-follow-up)

3.3.5 Quality assessment and analysis

A modified version of the Newcastle Ottawa Scale which was used in a previous published systematic review was chosen to assess risk of bias of individual studies at the study level [236]. Scores range from zero (high risk of bias) to three (low risk of bias). Definitions then follow in order to determine what constitutes low, moderate and high risk of bias. Two authors (AS and FR) independently assessed the quality of each included article. AS resolved any disagreements through discussion with another reviewer (EA). Articles were not excluded based on the quality assessment. Results of included studies were synthesised in narrative form.

3.4 Results

3.4.1 Search results

Figure 7 highlights the process of identifying relevant articles. A total of 6,959 records were identified across the four databases, with four additional records identified from other sources, namely reference list searching. Eighty-six full-text articles were assessed for eligibility. The search was re-run in March 2017 which retrieved 666 articles that were published in the interim. One of these met the

criteria for the study. Therefore, 24 papers meeting the inclusion criteria, representing 27 studies were included in the review. Three papers were published using the same study sample. Where this occurred, the most up-to-date or most comprehensive information and results were included. This was done to ensure that information was not duplicated in the review [90, 232, 237]. Of the 24 included studies, five studies examining aspects of physical health [72, 74, 75, 82, 96] found that family members bereaved by suicide had statistically poorer health outcomes than the non-suicide bereaved comparison. Two further studies found statistically significant associations in the opposite direction, whereby the suicide-bereaved were at lower risk than the non-suicide bereaved comparison [97, 238]. No studies examining psychosomatic health outcomes found statistically significant results.

3.4.2 Study characteristics

Table 2 outlines details of the 24 included studies. These were conducted in the United States (n = 9), Sweden (n = 4), Canada (n = 2), the Netherlands (n = 2), Denmark and Sweden (n = 1), Slovenia (n = 1), Denmark (n = 1), China (n = 1), Japan (n = 1), Norway (n = 1), and England (n = 1). The majority of the studies (13 studies) were conducted more than 10 years ago (1988-2003) [72, 73, 76-78, 87-89, 96-98, 233, 239], with 11 studies published in the last ten years (2006-2017) [74, 75, 82, 100, 101, 231, 235, 238, 240-242]. Included studies were 10 cross-sectional studies [73-77, 87, 88, 96, 101, 239], 11 cohort/registry-based studies [72, 89, 97, 98, 100, 233, 235, 238, 240-242] and three case-control studies [78, 82, 231]. Eleven studies examined aspects of physical health, including general health, [72, 74, 82, 89, 100, 231, 235, 238, 240-242], eight studies examined somatic complaints/reactions [73,

75-78, 88, 96, 98], three studies examined psychosomatic health outcomes [87, 101, 233], while the remaining two studies examined both physical and psychosomatic health outcomes [97, 239]. Sample size varied considerably between studies ranging from 13 people bereaved by suicide to large-scale registry-based studies with 31,672 people bereaved by suicide. Length of follow-up was also diverse, ranging from nine months to 45 years.

Table 2: **Study Characteristics and results**

Study ID	Setting	Study design	Participants	Comparison	Outcome(s)	Results	Study limitations
Cerel et al, 1999 [97]	Ohio, United States	Cohort study Follow-up: 1, 6, 13 and 25 after the death	N = 26 children bereaved by suicide of parent, from 15 families	N = 322 children bereaved by non-suicide death of parent (reasons other than suicide or homicide)	BAMO, an unvalidated scale measuring somatisation disorder Health/Sickness Questionnaire School and Physician Rating Forms	No significant difference in scores of somatisation between suicide and non-suicide bereaved. Suicide-bereaved children visited doctor less frequently but missed significantly more days of school than suicide-bereaved	Small sample size for suicide-bereaved children. No confounding factors were controlled for. Type 1 error is increased due to multiple testing of the data
Cleiren et al, 1994 [98]	Leiden, The Netherlands	Cohort study Follow-up: 4 and 14 months after death	N = 91 first-degree relatives and spouses bereaved by suicide	N = 93 first-degree relatives and spouses bereaved by traffic accident N = 125 people bereaved by the illness of first degree relative	General wellbeing questionnaire measuring physical health and somatic complaints (measure not described)	No differences were found for somatic complaints between the different modes of death groups (no p-value given). Mode of death was not significantly associated with physical health complaints	Some of scales used are not validated. No confounding factors were controlled for. 10% loss to follow-up which may introduce attrition bias
Erlangsen et al, 2017 [238]	Denmark	Longitudinal cohort study Follow-up: 1980-2014	N = 15607 suicide-bereaved spouses	N = 788778 spouses bereaved by non-suicide death	Diagnosis of cancers, diabetes, sleep disorders, cardiovascular and chronic lower respiratory tract diseases, liver cirrhosis, and spinal disc herniation	Suicide-bereaved had lower risk of diagnoses of cancer, diabetes, cardiovascular and chronic lower respiratory tract disorders. They were less likely to take sick leave.	Only people who were in a formal union or were living together were included. While analyses was adjusted for some covariates, unmeasured confounders may be an issue

Fang et al, 2011 [240]	Sweden	Historic cohort study Follow-up: 1990-2004	N = 102 parents bereaved by suicide of child	N = 124 parents bereaved by non-suicide death of child N = 334 and n = 297 parents bereaved by non-cancer and cancer death of child N = 46 and n = 251 parents bereaved by an infection-related or any other cause of death of child	A diagnosis of infection-related cancer using ICD codes	The risk ratio was higher for suicide-bereaved than for non-suicide bereaved but this didn't reach statistical significance confidence intervals greatly overlapped	Some potential confounders were not accounted for due to the registry-based nature of the study
Farberow et al, 1992 [233]	Three counties in California	Cohort study Follow-up: 2, 6, 12 and 30 months after the death	N = 108 suicide bereaved aged ≥55 years	N = 199 ≥55 years bereaved by natural death N = 144 people aged ≥55 years not experienced any death or divorce of spouse	The somatization subscale of the Brief Symptom Inventory (BSI)	Suicide-bereaved and naturally bereaved spouses did not differ significantly on the somatization subscale. All of the mean scores of the scales, including somatization, decreased over the 2.5 year period	There appears to be loss to follow-up in each group which may indicate the presence of attrition bias
Grad and Zavasnik, 1999 [89]	Slovenia	Cohort study Follow-up: 2 and 12-14 months after the death	N = 30 suicide-bereaved spouses	N = 23 road traffic accident-bereaved of their spouse N = 20 spouses bereaved by terminal illness	Slovenia Bereavement Scale (SBS) has 46 items, representing several categories, including physical health	There were no statistically significant differences (no data presented) between the bereaved groups on the physical health measures contained within the SBS.	Small sample size; no confounding factors controlled for. First assessment conducted 2 months post-death when acute grief is likely to be present

Kennedy et al, 2014 [241]	Sweden	Historical cohort study Follow-up: 1961-2006	N = 19535 offspring ≤18 years and n = 12137 ≥18 years who lost a parent due to suicide	N = 42796 offspring ≤18 years and n = 136786 ≥18 years bereaved by parental cancer death N = 52592 offspring ≤ 18 years and n = 178393 ≥18 years bereaved by parental non-cancer death N = 25772 offspring ≤18 years and n = 18566 ≥18 years bereaved by parental non-suicide death	Diagnosis of first malignant cancer before the age of 40 in the Cancer Register	The effect of suicide bereavement more than doubled the risk of human papillomavirus-related cancers before the age of 40, compared to those bereaved by non-suicide deaths. However, this finding was not statistically significant.	No information on individual confounding factors including alcohol consumption and smoking
Momen et al, 2013 [235]	Denmark and Sweden	Population-based cohort study Follow-up for Denmark/ Sweden: 1968-2007/1973-2006	N = <66 suicide-bereaved (exact number unavailable from authors)	N = 1217 children bereaved by unexpected deaths other than accident, suicide or violence of their relative	A diagnosis of childhood cancers using ICD codes	The adjusted hazard ratio was higher for suicide-bereaved children than children bereaved by other causes of death. However this association did not reach statistical significance	Small numbers of suicide bereaved may not make these findings generalisable to other suicide bereaved family members

Séguin et al, 1995 [72]	Quebec City, Montreal	Cohort study Follow-up: First interview M = 5.8 months after the death Second interview M = 9 months after the death	N = 30 parents who lost a son aged 18 to 35 years to suicide	N = 30 parents who lost a son aged 18 to 35 years by a car accident	Physical disorders were measured using items taken from Quebec's 1987 Health Survey	Suicide-bereaved had more physical illnesses and consulted health professionals more frequently than accident survivors	Some important confounding factors including gender and age of the deceased not controlled for. High rate of attrition bias
Weinberg et al, 2013 [242]	United States	Prospective longitudinal controlled study Follow-up: 5 years	N = 45 offspring bereaved by suicide of a parent	N = 27 offspring bereaved by accidental death of a parent N = 51 offspring bereaved by sudden natural death of a parent	BMI was the outcome studied, by measuring the weight and height of offspring objectively	There were no differences in the BMI categories of offspring bereaved by suicide, accident and sudden natural death	Some participants recruited via advertising. Possible attrition bias as participants lost to follow-up more likely to be bereaved than those retained in the study
Wilcox et al, 2015 [100]	Sweden	Prospective cohort study Follow-up: 3 years	N = 537 parents bereaved by suicide of an offspring	N = 716 parents bereaved by accidental death of offspring N = 549 parents bereaved by natural death of offspring	Diagnosis-specific sickness absence exceeding 30 days due to somatic diagnoses	No statistically significant differences in the risk of somatic diagnosis between suicide-bereaved, accident-bereaved and naturally bereaved parents	Sickness absence due to specific somatic diagnoses were only included if they exceeded 30 days.

Barrett and Scott, 1990 [73]	North Dakota and Minnesota, United States	Cross-sectional study	N = 14 suicide-bereaved spouses	N = 15 accident-bereaved spouses N = 15 unanticipated natural death bereaved N = 13 bereaved by expected natural of spouse	Grief Experiences Questionnaire (GEQ): somatic reactions subscale	No significant differences in mean scores of somatic reactions for suicide-bereaved and non-suicide bereaved	Small sample size of suicide and non-suicide bereaved
De Groot et al, 2006 [74]	Northern Provinces in The Netherlands	Cross-sectional study	N = 153 first-degree suicide-bereaved relatives and spouses	N = 70 first-degree relatives and spouses bereaved by natural causes	RAND-36 used to assess general health, with nine subscales	Suicide-bereaved functioned less well in terms of pain and general health than naturally-bereaved	Possibility of selection bias due to difficulty in recruiting family members bereaved by natural death
Demi and Miles, 1988 [239]	United States	Cross-sectional study	N = 59 (15 fathers and 44 mothers) parents whose children died by suicide	N = 61 (13 fathers and 48 mothers) whose children died as a result of an accident or a chronic disease	Hopkins Symptom Checklist (HSCL) Health problems measured using the Bereavement Health Assessment Scale (BHAS)	No difference on the 5 subscales of the HSCL (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety) or across physical health outcomes between the 2 groups	Bereaved parents may not be representative as they were recruited from self-help groups
Dyregrov et al, 2003 [96]	Norway	Cross-sectional study	N = 128 suicide-bereaved parents	N = 68 accident-bereaved parents N = 36 SIDS-bereaved parents	General Health Questionnaire (GHQ-28): somatic symptoms	SIDS-bereaved parents experienced significantly fewer problems on GHQ than suicide and accident-bereaved	Control group was heterogenous (violent and non-violent deaths)

Kitson, 2000 [87]	Two Midwestern counties in United States	Cross-sectional study	N = 85 suicide-bereaved widows	N = 56 homicide-bereaved widows N= 135 accident-bereaved widows N = 167 sudden death bereaved widows N = 106 long-term illness bereaved widows	The somatization subscale of the Brief Symptom Inventory (BSI)	No differences between the 5 bereaved groups on somaticism	Control group contained both bereavement from violent and non-violent deaths which may have introduced selection bias
McNiel et al, 1988 [88]	United States	Cross-sectional study	N = 13 widows bereaved by the suicide death of their husband	N = 13 widows bereaved by the accidental death of their husband	General Health Questionnaire (GHQ): somatic complaints subscale	No significant differences in the mean scores of suicide and accident-bereaved	Very small sample size and no confounding factors were adjusted for
Miyabayashi and Yasuda, 2007 [75]	Japan	Cross-sectional study	N = 21 suicide-bereaved adults	N = 23 accident-bereaved adults N = 9 adults bereaved by acute illness N = 74 adults bereaved by shorter illness N = 88 adults bereaved by longer illness	General Health Questionnaire (GHQ), including somatic symptoms	No group differences were found for somatic symptoms. Multiple comparison tests indicated that those bereaved by suicide had poorer general heath than those bereaved by a longer illness ($p < 0.05$)	Selection bias may be present as participants recruited from self-help group. Response bias may be present due to the small sample of suicide bereaved and those bereaved by acute illness. Some important confounders were not controlled for

Pfeffer et al, 2000 [76]	United States	Cross-sectional study	N = 11 families (made up of 16 children) where a parent died by suicide	N = 57 families (made up of 64 children) where a parent died from cancer	Child Behaviour Checklist (CBCL) has a subscale for somatic complaints	Mean scores of somatic complaints did not significantly differ between children bereaved by the cancer death of a parent and the suicide death of a parent	Some participants recruited via advertising which could lead to response bias. Very small sample of suicide-bereaved which will not be generalisable
Reed and Greenwald, 1991 [77]	United States	Cross-sectional study	N = 85 suicide-bereaved relatives and spouses	N = 96 accident-bereaved relatives and spouses	Measure for somatic complaints with a 6-items	No significant differences in somatic complaints between the two groups	Use of unvalidated measures throughout the study
Xu and Li, 2014 [101]	China	Cross-sectional study	N = 92 immediate family members (parents, siblings, children, spouses) bereaved by suicide	N = 64 immediate family members (parents, siblings, children, spouses) bereaved by accidental death	The Symptom Checklist-90-Revised (SCL-90-R) has nine subscales, including somatisation	No significant differences were found on the score of somatisation between the suicide-bereaved group and the accidental death group	May not be generalisable to wider bereaved group as findings may be culturally specific
Bolton et al, 2013 [82]	Manitoba, Canada	Longitudinal case-control study	N = 1415 parents of children that died by suicide	N = 1132 parents of children who died in an motor vehicle crash N = 1415 non-bereaved parents	Physical health disorders based on ICD 9 and 10 codes Outpatient physician visits for physical health and hospitalisation for physical illnesses	Two years pre and post-death, suicide-bereaved parents had significantly higher rates of CVD COPD, hypertension, diabetes, and outpatient physician visits for physical illnesses compared to motor-vehicle bereaved parents	Prevalence of physical disorders were examined two years pre-death and two years post-death. This time may not be sufficient for the development of certain physical health problems

Harwood et al, 2002 [78]	England	Case-control study	N = 46 adults bereaved by the suicide of an older adult	N = 46 adults bereaved by the natural death of an older adult	Grief Experiences Questionnaire (GEQ): somatic reactions subscale	No significant difference on somatic reactions for suicide-bereaved and naturally-bereaved	Small sample size may have increased the risk of type II error
Huang et al, 2013 [231]	Sweden	Nested case-control study	N = 792 parents bereaved by the suicide of a child	N = 1451 bereaved by non-self-inflicted death of child N = 1066 bereaved by cancer of child N = 2814 bereaved by non-cancer death of child	Pancreatic cancer, identified by the Swedish Cancer Register	It appears that suicide-bereaved have a higher risk of cancer but this finding is not statistically significant when compared with non-suicide bereaved	Unmeasured potential confounders for pancreatic cancer, including smoking and BMI could not be controlled for.

3.4.3 Risk of bias assessment

The modified version of the Newcastle Ottawa Scale (NOS) used has nine questions relating to five domains of evaluation, namely: selection of study participants (selection bias); controlling for confounding (performance bias); statistical methods (detection bias), measuring outcome variables (information bias); and subject follow-up (only for follow-up studies; attrition bias). Following the assessment of included studies using the modified version of the NOS, a number of study limitations emerged (Table 3). Firstly, some studies (4/24) recruited study participants by advertising or recruiting from self-help groups, which may have introduced selection bias into the studies. Nearly half (11/24) of all included studies had small sample sizes, with the smallest sample being 13 suicide-bereaved widows. This small sample size may have reduced the likelihood of being able to identify a statistically significant difference between the suicide-bereaved and non-suicide bereaved groups with respect to physical and psychosomatic health. Seven of the studies had suicide-bereaved sample sizes of 30 participants or less. Over a quarter (6/24) of included studies either did not control for any confounding factors (4/24) or only adjusted for limited confounding factors (2/24). A small minority of studies (4/24) controlled for various factors including pre-bereavement functioning, kinship, cause of death, decedent's gender and age and time since death. Overall, statistical analysis conducted across the papers was good, with the use of appropriate statistical methods. However, it was noted that over a quarter of studies (6/24) carried out multiple testing that was not accounted for, had inconsistent or no reporting of p-values and 95% confidence interval thresholds, and data was not presented for some analyses that were conducted. Half of the

studies (12/24) contained heterogeneous control groups, where family members bereaved by violent (accident, homicide) and non-violent deaths (natural anticipated, natural unanticipated) were analysed together. This may have introduced selection bias as research indicates that health consequences differ when the death is violent or nonviolent [65].

A comparison of characteristics of responders and non-responders was present in a minority of the studies (2/24), with the majority of papers not presenting this information (13/24). Six studies were register-based studies and therefore, the issue of non-response bias is not applicable. One study did not have any information on non-responders beyond gender, age, mode of death and place of residence of deceased, due to confidentiality reasons. A further study compared excluded cases to included cases on a number of variables including victim's age, race, sex and method of death and concluded there was no evidence of sample bias. Finally, one study compared bereaved offspring that remained in the study to those lost to follow-up. Bereaved offspring lost to follow-up were more likely than those who remained in the study to have a caregiver with a history of alcohol or substance disorder (32.1% vs. 16.7%), to have a caregiver of minority status (28.4% vs. 11.7%), and to have had a proband with a history of an anxiety disorder (28.3% vs. 16.4%). Overall, selection bias emerged as an important methodological consideration in the included papers.

Table 3: **Risk of bias assessment using Modified Version of Newcastle Ottawa Scale**

	Is the source population appropriate and representative of population of interest?	Is the source sample size sufficient and is there sufficient power to detect a meaningful difference in outcome?	Did the study adjust for any variables or confounders that may influence the outcome?	Did the study use appropriate statistical analysis methods relative to the outcome of interest?	Is there little missing data and did the study handle it accordingly?	Is the methodology of the outcome measurement explicitly stated and is it appropriate? Is there an objective assessment of outcome?	Was the follow-up sufficiently long enough for the outcome to occur?	Was there minimal loss to follow-up and are subjects lost to follow-up unlikely to introduce bias?
Barrett & Scott (1990)	2	0	0	2	3	2	NA	NA
Bolton et al. (2013)	2	3	3	2	3	3	2	3
Cerel et al. (1999)	2	1	0	2	0	3	3	1
Cleiren et al. (1994)	2	2	0	1	3	1	2	2
Demi and Miles (1988)	0	2	1	2	3	2	NA	NA
De Groot et al. (2006)	2	3	2	3	3	2	NA	NA
Dyregrov et al. (2003)	3	3	2	3	3	2	NA	NA
Erlangsen et al. (2017)	3	3	2	3	3	3	3	3
Fang et al. (2011)	3	3	2	3	3	3	3	3

Farberow et al. (1992)	2	3	3	3	3	2	2	1
Grad and Zavasnik (1999)	3	1	0	2	3	2	2	1
Harwood et al. (2002)	2	1	2	2	3	2	NA	NA
Huang et al. (2013)	2	3	2	3	3	3	3	3
Kennedy et al. (2014)	3	3	2	3	3	3	3	3
Kitson (2000)	2	2	2	2	3	2	NA	NA
Miyabashi and Yasuda (2007)	0	1	1	2	2	2	NA	NA
Momen et al. (2013)	3	1	3	3	3	3	3	3
McNeil et al. (1988)	2	0	0	2	3	2	NA	NA
Pfeffer et al. (2000)	1	0	2	2	2	2	NA	NA
Reed and Greenwald (1991)	3	2	2	2	3	1	NA	NA
Seguin et al. (1995)	2	1	2	2	3	2	2	1
Weinberg et al. (2013)	1	1	2	3	3	3	3	1
Wilcox et al. (2015)	2	3	2	3	3	2	3	3
Xu and Li (2014)	3	2	3	2	3	2	NA	NA

3.4.4 Suicide bereavement and general health

Seven studies examined general health. Two cross-sectional studies found significant associations between suicide bereavement and general health [74, 75]. The first study by De Groot and colleagues included a Dutch sample of 223 bereaved family members. Suicide-bereaved family members scored more negatively than family members bereaved by natural death on a number of domains of the RAND scale, including pain, general health and experiencing a change in health following the death when compared to those bereaved by a natural death immediately before the death [74]. When analyses were adjusted for demographics, neuroticism and expectedness of death, pain was the only health-related measure that remained significant (95% CI: -.7, -.003) [74]. Selection bias may be an issue in this study because just 45% of approached suicide-bereaved families took part in the study. The second study showed that the general health of those bereaved by suicide (n = 21) was significantly poorer than those bereaved by a long-term illness (n = 88) ($p < 0.05$) [75]. However, participants were recruited from self-help groups and seminars for the bereaved and thus represent a biased sample of bereaved individuals.

Two cohort studies found statistically significant associations between general health and suicide bereavement [72], with one study finding an inverse association [243]. The first study of 60 bereaved family members found that those bereaved by suicide (n = 30) reported “more physical illnesses” and greater frequencies of appointments with healthcare professionals than those bereaved by accidental death (n = 30) [72]. Length of follow-up was relatively short, with the

first and second interview occurring a mean 5.8 (range 4-8) and 9 (range 7 -11) months after the death. In addition, nearly one-third of the suicide-bereaved sample (30.6%) refused to take part in the follow-up interview which may have introduced attrition bias. The second cohort study consisted of 26 suicide-bereaved and 332 non-suicide bereaved children and adolescents conducted in the United States by Cerel and Colleagues. In contrast to Séguin's findings, the suicide-bereaved youth had significantly fewer visits to a doctor at 13 months (mean ± SD = 0.7 ± 1.1 versus 2.0 ± 3.3; t = 2.71, df = 24.5, p <.05) and 25 months post-bereavement (mean ± SD = 1.8 ± 2.7 versus 6.0 ± 8.5; t = 3.50, df = 18.4, p <.005) [97]. Séguin and colleagues found that suicide-bereaved parents visited health professionals more frequently than accident-bereaved parents [72]. The study by Cerel and colleagues also found that school-reported health problems did not vary between the suicide and non-suicide bereaved groups. In addition, non-suicide-bereaved offspring had missed significantly more days from school than suicide-bereaved offspring (2.8 ± 3.8 versus 0.8 ± 0.8; t = 2.78, df = 10.1, p <.05). This study had a very small sample of suicide bereaved (n = 26) in comparison to an over-representation of non-suicide bereaved (n = 332) participants. A greater number of suicide-bereaved participants would have been preferable in order to have more balanced exposure groups for comparison purposes.

Two further cohort studies conducted in Slovenia [89] and The Netherlands [98] failed to find any significant association between suicide bereavement and physical health. The first study had a small sample size of 30 suicide-bereaved, 23 accident bereaved, and 20 spouses bereaved by a long-term illness (no p-value reported) [89]. The second study included a sample of 309 people bereaved by the

death of a first-degree relative at four and 14 months after the death, but only controlled for limited confounders including sex, kinship and mode of death [98]. Lastly, a cross-sectional study conducted in the United States by Demi and Miles failed to find a significant difference between 59 suicide and 61 non-suicide bereaved parents with regard to physical health problems [$F(4, 95 = 1.52, p = .20$] [239]. However, the suicide-bereaved sample was recruited from self-help groups through various means of contact, indicating that a response rate for the suicide-bereaved group could not be reported. In addition, since only parental age was controlled for in the analysis, other important confounding factors were not taken into account.

3.4.5 Suicide bereavement and specific physical disorders

Eight studies examined specific physical disorders and suicide bereavement. Four cohort/register-based studies examined the possible association between various forms of cancer following suicide bereavement. One additional registry-based study examined a number of physical health conditions, including cancer, CVD, diabetes and suicide bereavement [238]. Two Swedish register-based studies concluded that, being bereaved by the suicide death of an offspring conferred a higher risk (RR: 1.24, 95% CI: 1.01-1.49) of infection-related cancers [240] and pancreatic cancer in parents [231] (OR: 1.23, 95% CI: 1.03-1.46) compared to those bereaved by a non-suicide death [240]. Nevertheless, these findings were not statistically significant when compared with non-suicide bereaved parents. Similarly, two other large national studies found no statistically significant association between loss of a parent due to suicide when compared to other unexpected causes of death with a

maximum of 15 years and 40 years of follow-up, respectively [235, 241]. These four studies successfully met most of the quality assessment criteria [231, 240, 241] with the exception of one paper having a relatively small number of suicide-bereaved participants [235].

No significant differences were found in categories of body mass index (BMI) (normal, overweight, obese) by Weinberg and colleagues at the 5-year assessment in offspring bereaved by suicide (n = 45), accident (n = 27) or sudden natural death (n = 51) [242]. However, the sample size was relatively small with some participants being recruited via advertising. Using data provided in the paper by Wilcox and colleagues cohort study, additional calculations did not show any statistically significant differences in the risk of sickness absence due to somatic diagnosis between suicide-bereaved, accident-bereaved and naturally bereaved. [100]. This study met most of the quality assessment criteria with some minor limitations related to selection bias and outcome measurement.

A Canadian case-control study conducted by Bolton and colleagues found that suicide-bereaved parents (n = 1,415) had a significantly increased risk of a number of specific physical health disorders both before and after their offspring's death compared to 1,132 accident-bereaved parents [82]. These include CVD (2 years pre-death ARR: 1.54: 1.16-2.03; 2 years post-death ARR: 1.63: 1.23-2.16), hypertension (ARR 1.37: 1.19-1.59; ARR 1.32: 1.15-1.52), diabetes mellitus (ARR 1.45: 1.20-1.76; ARR 1.66: 1.37-2.00) and COPD (ARR 1.68: 1.20-2.37; ARR 2.01: 1.40-2.90) [82]. In addition, suicide bereaved parents had an increased risk of visiting a physician for a physical illness (ARR 1.38: 1.15-1.65; ARR 1.39: 1.18-1.63)

and also being hospitalised for a physical illness (ARR 1.49: 1.01-2.20; ARR 1.52: 1.07-2.16) [82]. This paper met most of the quality assessment criteria. In contrast, a Danish register-based study found that spouses bereaved by suicide (n = 15607) had a lower risk of receiving a subsequent diagnosis of a number of physical health disorders compared to spouses bereaved by a non-suicide death (n = 788778) [238]. These included cancers (men: IRR, 0.8; 95% CI, 0.7-0.9; women: IRR, 0.8; 95% CI, 0.7-0.9), diabetes (men: IRR, 0.6; 95% CI, 0.4-0.7; women: IRR, 0.6; 95% CI, 0.5-0.8), cardiovascular (men: IRR, 0.9; 95% CI 0.8-0.9; women: IRR, 0.9; 95% CI, 0.8-1.0), and chronic lower respiratory tract disorders (men: IRR, 0.8; 95% CI, 0.7-1.0; women: IRR, 0.7; 95% CI, 0.6-0.8). Suicide-bereaved were less likely to take sick leave (men: IRR, 0.8; 95% CI, 0.7-0.9; women: IRR, 0.8; 95% CI, 0.7-0.8), while men were less likely to visit a general practitioner (GP) than those bereaved by other causes of death (IRR, 0.9; 95% CI, 0.8-1.0). Also, suicide-bereaved women had lower use of hospitals for somatic illnesses (IRR, 0.9; 95% CI, 0.8-1.0). Similarly, this study scored highly across all of the assessment domains [238].

3.4.6 Suicide bereavement and physical symptoms/somatic complaints

Eight studies examined physical symptoms/somatic complaints. Three American cross-sectional studies found no significant difference in somatic complaints for suicide-bereaved and accident-bereaved widows [88] and next-of-kin [77] and suicide-bereaved and cancer-bereaved children [76]. Sample sizes for the suicide-bereaved were a particular issue for two of the studies with a sample of 13 [88] and 16 [76], respectively. A further cross-sectional study conducted in Norway found that parents bereaved by SIDS (Sudden Infant Death Syndrome) experienced

significantly fewer problems ($p < .05$) than parents bereaved by suicide and accidents on the General Health Questionnaire (GHQ). Therefore, those bereaved by suicide and accident significantly differed from the SIDS sample with respect to their level of complaints on the GHQ (suicide: $M = 9.8$, $SD = 8.3$; accident: $M = 10.4$, $SD = 7.8$; vs. SIDS: $M = 5.8$, $SD = 7.1$, $F = 4.17$, $p < .05$)[96]. Cleiren and colleagues also found no significant difference in somatic complaints between 91 suicide-bereaved, 93 road traffic accident or 125 long-term-illness-bereaved first-degree relatives in a Dutch 10-month cohort study (data not presented in original paper) [98]. This study controlled for sex, kinship and mode of death only, which may have biased the results. Kinship, in this review refers to the type of familial relationship (parent-child, spousal, sibling, child-parent), including blood and non-blood relationships, between two people.

An American cross-sectional [73] and an English cohort study [78] found that somatic reactions did not significantly differ between suicide-bereaved and non-suicide bereaved participants. Specifically, the first study consisted of 14 suicide-bereaved ($M = 12.86$, $SD = 4.57$, $p > .05$), 15 accident-bereaved ($M = 12.40$, $SD = 4.01$, $p > .05$), 15 unanticipated naturally-bereaved ($M = 12.67$, $SD = 3.27$, $p > .05$) and 13 expected naturally bereaved widows/widowers ($M = 11.08$, $SD = 3.01$, $p > .05$) [73]. The second study included 20 suicide-bereaved and 18 naturally-bereaved children of deceased ($M = 10.7$ versus $M = 9.9$) [78]. Sample size was a significant limitation in both studies.

One final cross-sectional study conducted in Japan [75] did not find any significant group differences in somatic symptoms and complaints when comparing

suicide-bereaved and non-suicide bereaved family members. The paper had hugely different sample sizes within the bereavement groups: suicide (n =21), accidents (n =23), acute illness (<1 day) (n = 9), shorter illness (<1 year) (n = 74) or longer illness (≥ 1 year) (n = 88) [75]. This may have had an impact on identifying potential group differences.

3.4.7 Suicide bereavement and somatisation

Five studies examined somatisation and suicide bereavement. Three were cross-sectional studies, two of which were conducted in the United States [87, 239], and one was conducted in China [101]. The American cross-sectional study conducted by Demi and Miles did not find significant differences between 59 suicide-bereaved and 61 non-suicide bereaved parents on the scale measuring distress, which included a somatisation measure [$F (5, 111) = .45$, $p = .81$] [239]. Participants were recruited via self-help groups and only parental age was adjusted for in the analysis. Similarly, the second American cross-sectional study concluded that mean scores on somatisation did not significantly differ between 85 suicide-bereaved ($M = 9.9$, $SD = 9.9$), 56 homicide bereaved ($M = 9.7$, $SD = 9.6$), 135 accident-bereaved ($M = 10.2$, $SD = 10.1$), 167 sudden natural death bereaved ($M = 9.7$, $SD = 9.7$) and 106 long-term illness-bereaved widows ($M = 10.8$, $SD = 10.8$) [87]. The cross-sectional study conducted in China found no significant difference in somatisation between 92 suicide-bereaved and 64 accident-bereaved immediate family members ($p = 0.87$) [101]. Both of these studies met most of the quality assessment criteria. Cerel and colleagues conducted a cohort study in the United States which found no differences between 26 suicide-bereaved and 322 non-suicide bereaved children

and adolescents with respect to somatisation [97]. Interviews were conducted with participants at 1, 6, 13 and 25 months post-parental death [97]. Sample size for the suicide-bereaved was a limitation in the study, together with the limitation that no confounding factors were adjusted for in the analysis. Similarly, the American cohort study conducted by Farberow and colleagues found that suicide-bereaved (n =108) and naturally bereaved spouses (n = 199) did not differ significantly on the somatisation subscale (no p-value given) [233]. This study met most of the quality assessment criteria. However, it appears that there was a high rate of loss to follow-up in the study.

3.5 Discussion

The current systematic review found 24 studies that fit the inclusion criteria. Of these, seven studies found statistically significant associations between aspects of physical health and suicide bereavement. Five studies noted that people bereaved by suicide had an increased risk of a number of adverse physical health outcomes. Two further studies found an association in the opposite direction for a number of physical health outcomes [238] and healthcare utilisation [97] for those bereaved by suicide.

This review of physical and psychosomatic health outcomes found tentative evidence supporting an association between bereavement by suicide and some physical health outcomes, although there are inconsistencies. CVD, COPD, hypertension, diabetes, increased pain and poorer general health were more frequently reported adverse physical health outcomes among people bereaved by suicide [72, 74, 75, 82, 96] compared to those who experienced other types of

bereavement. Some studies found that suicide bereavement conferred a lower risk of various physical and psychosomatic health outcomes [97, 238]. However, the majority of studies found no significant differences in physical and psychosomatic health outcomes following suicide bereavement [73, 76-78, 87-89, 98, 100, 101, 231, 233, 235, 239-242].

The prevalence of physical health issues in those bereaved by suicide [72, 74, 75, 82, 96] may lead to more healthcare utilisation. There are varying findings with respect to healthcare utilisation amongst the suicide-bereaved. Suicide-bereaved adults were more likely to experience a health change after the death, have more appointments with healthcare professionals and also to be hospitalised more often for physical illnesses compared to non-suicide bereaved family members. In contrast, men bereaved by the suicide of a spouse were less likely to visit a GP than those bereaved by other causes of death. In addition, both men and women bereaved by a spouse's suicide were less likely to take sick leave than those bereaved by other causes of death [238]. Not seeking medical attention for physical health problems may be due to being preoccupied by grief [238, 244]. This underlies the importance for health care practitioners to be aware of the unique challenges of suicide bereavement and its associated health issues in their patients. Similarly, children bereaved by suicide missed significantly fewer days from school and also had fewer visits to a doctor compared to non-suicide bereaved children [97]. Suicide-bereaved children may have less familial environmental stressors and higher levels of functioning, including grief responses which have been shown to be important in moderating long-term outcomes for parentally bereaved children [84, 245]. Moreover, suicide-bereaved people experience more perceived stigma than

those bereaved by both sudden unnatural and sudden natural death [91]. Shame and stigma have been linked to a number of avoidance behaviours, including poorer help-seeking in the suicide-bereaved [58, 91, 109]. Where people experience high levels of shame and stigma, this may impact negatively on their help-seeking behaviour which may in turn impact negatively on health outcomes. Additionally, a recent systematic review highlighted that stigma experienced by people bereaved by suicide was strongly correlated with increased somatic reactions, including headaches and stomach pain [109]. Therefore, it may also be plausible that shame and stigma may moderate the relationship between physical and psychosomatic health outcomes following suicide bereavement.

Following the synthesis of results, a number of issues associated with the included studies became apparent. Firstly, sample size was a significant limitation across a number of the studies, resulting in studies being underpowered, with some of the suicide-bereaved samples being as low as thirteen participants [88]. Some of the studies recruited participants from advertising, self-help and bereavement support groups, which biases the sample recruited as this group may be significantly different to those who do not attend support groups in terms of their own characteristics and grief responses [75, 76, 239, 242]. A number of studies did not adjust for any confounding factors [73, 88, 89, 97], and some adjusted only for a limited number of confounders including basic demographics of the deceased and/or surviving relative [75, 98, 239]. Only two of the included studies examined pre-bereavement physical health, which examined outcomes both before and after offspring death [82, 100]. Therefore, the majority of the studies included in this review only focus on changes to physical health after bereavement, and

consequently, are subject to recall bias. Length of follow-up for the cohort/registry-based studies was generally considerable, with the shortest follow-up being nine months after the death. However, two of the studies conducted interviews with bereaved participants two and three months post-death. This short time span may bias results as acute grief reactions may still be present. Half of included studies had heterogeneous control groups, where both violent and nonviolent bereavements were included [73, 75, 87, 89, 96, 98, 100, 231, 235, 240, 242]. Research indicates that sense-making is significantly more challenging for people bereaved by violent deaths versus non-violent deaths [246]. In addition, those bereaved by suicide and drug-related death appear to be more affected by grief and mental health problems compared to those bereaved by accidental and natural deaths [247]. Therefore, the presence of heterogeneous control groups in these studies may underestimate the true impact of suicide bereavement on physical and psychosomatic outcomes.

Overall, the evidence to support an increased risk of adverse physical health outcomes following suicide bereavement is growing but further longitudinal controlled studies are needed. No study examining psychosomatic outcomes and suicide bereavement found a positive association. The use of objective measures of physical health is warranted in future studies, as much of the research conducted in this area have used self-reported measures of health which are subject to recall bias. Furthermore, more studies need to examine pre-bereavement physical health, which examines outcomes both before and after the death. Therefore, the majority of the studies included in this review only focus on changes to physical health after

bereavement, and consequently, are subject to recall bias. Following on from this, uncertainty remains regarding psychosomatic health and suicide bereavement.

3.5.1 Strengths and limitations

This is the first review to synthesise all relevant papers related to suicide bereavement and physical and psychosomatic health outcomes, using a rigorous, exhaustive and comprehensive search strategy. The PRISMA checklist guided the reporting of this review. This review also has some limitations. Firstly, only English-language studies published from 1985 to March 2017 were included. Only quantitative papers were included; differing results and conclusions may have been found with the additional inclusion of qualitative studies. It is possible that some differences in suicide bereavement may only be revealed through in-depth qualitative interviews as opposed to quantitative methods. The evidence indicates that suicide bereavement is associated with some adverse physical health outcomes, but there inconsistencies across the studies. In addition, studies relating to psychosomatic health outcomes did not show an association with suicide bereavement. There was also an imbalance of studies reporting on physical health outcomes, with a small minority of papers solely focussing on psychosomatic health outcomes. This needs to be addressed in future research. Some of the papers investigating psychosomatic health outcomes had small sample sizes, selection bias and did not control for confounding factors. We need further research addressing the uncertainty regarding the association between physical and psychosomatic health outcomes and suicide bereavement as well as the specificity of these outcomes. Register-based and cohort studies are the most appropriate means of

examining this research question; selecting an appropriate control group, people bereaved by sudden and violent deaths, is essential. Future studies also need to allow for sufficient time to follow-up as some of the outcomes may not be present shortly after bereavement.

3.6 Conclusions

This systematic review found that a small number of studies demonstrated associations between suicide bereavement and adverse physical health outcomes, including CVD, diabetes, COPD, hypertension and poorer general health. However, most studies failed to conclude that people bereaved by suicide were at higher risk for a number of physical health conditions compared to non-suicide bereaved individuals. No studies found a significant association between suicide bereavement and psychosomatic health outcomes. Thus, the findings of this review indicate that, in terms of psychosomatic health issues at least, those bereaved by suicide may closely resemble people bereaved by other causes of death. Inconsistencies in results may be due to methodological shortcomings in the available studies, including inappropriate selection of control groups, small sample size and failure to control for confounding factors. Further longitudinal controlled studies need to be conducted in order to better understand the health implications of suicide bereavement, specifically compared to bereavement after sudden and violent deaths, including accident and homicide deaths.

Chapter 4. What are the physical and psychological health effects of suicide bereavement on family members? Protocol for an observational and interview mixed-methods study in Ireland

AILBHE SPILLANE

CELINE LARKIN

PAUL CORCORAN

KAREN MATVIENKO-SIKAR

ELLA ARENSMAN

Published as: Spillane A, Larkin C, Corcoran P, Matvienko-Sikar K, Arensman E. **What are the physical and psychological health effects of suicide bereavement on family members? Protocol for an observational and interview mixed-methods study in Ireland.** *BMJ Open* 2017, **7**(3).

4.1 Abstract

Introduction: Research indicates that experiencing the suicide of a relative can have a significant impact on family members' emotional health. However, research incorporating the impact of suicide bereavement on family members' physical health is sparse. This paper details the protocol for a mixed-methods study of suicide bereaved family members. The study will primarily examine the physical and mental health needs of those bereaved by suicide. A secondary objective of the study is to describe the support service needs of family members bereaved by suicide.

Methods and analysis: A mixed-methods approach, using semi-structured interviews and self-report questionnaires will be utilised. Interviews will be conducted with a group of 15-20 relatives who experienced suicide bereavement. This protocol will follow the COREQ checklist criteria for the reporting of qualitative research interviews. Thematic analysis will be used to examine experiences and impact of bereavement on psychological and physical health. Self-report quantitative data on wellbeing will be analysed using descriptive statistics.

Ethics and dissemination: Ethical approval to conduct this study has been granted from the Clinical Research Ethics Committee of the Cork Teaching Hospitals. Pseudonyms will be given to participants to protect anonymity. It will be explained to participants that participation in the study is voluntary and they have to right to withdraw at any time. The findings of this research will be disseminated to regional, national and international audiences through publication in peer-reviewed international journals and presentations at scientific conferences. This research also forms part of a PhD thesis.

Strengths and limitations of the study

- This study addresses a specific gap in the literature by exploring and examining the physical and psychological health effects of suicide bereavement on family members in Ireland.
- The backgrounds and characteristics of family members included in the qualitative component of the study are diverse, thereby allowing for a range of experiences and rich data.
- The inclusion of probable cases of suicide will help to identify 'hidden' suicide cases, which would otherwise not have been included.
- Participants are drawn from a small geographic area and the findings of this study may not be generalizable to other settings. However, the main aim of qualitative research is to be credible and transferrable.

4.2 Introduction

Approximately 800,000 people die by suicide annually, resulting in an estimated 48 to 500 million people experiencing suicide bereavement every year worldwide [9, 80]. Suicide and self-harm can have a significant impact on family members' emotional and social functioning [28, 82, 122, 123]. Suicide bereavement is associated with a number of adverse mental health outcomes, including depression, psychiatric admission and self-harm [28, 80, 82, 231]. However, research examining the physical health effects of suicide bereavement is sparse.

It is increasingly recognised that negative psychological factors, including depression, are implicated in the development and advancement of cardiovascular

disease (CVD) [248, 249]. Stressful life events also impact physical health [250], and the experience of bereavement in particular is associated with negative health outcomes [251]. Bereavement is not only associated with an excess risk of mortality but also physical ill-health and negative psychological reactions and symptoms, including mental disorders or complications related to the grieving process [251]. There is also emerging evidence of the effect of suicide bereavement on physical health: for example one recent case-control study found that suicide bereaved parents have a higher risk of CVD, hypertension, diabetes and chronic obstructive pulmonary disease [82]. Given the increased risk of poor health among those experiencing bereavement and mental health problems, more research is required into the physical health sequelae of suicide bereavement. The majority of extant studies on this topic are quantitative in nature [74, 82, 101, 242, 252]. Therefore, qualitative research is required to fully understand and effectively respond to the needs experienced by people affected by the suicide of their family member [51].

4.2.1 The impact of suicide on the individual, family and social life

People bereaved by suicide are at increased risk of negative physical outcomes, including CVD, chronic obstructive pulmonary disease (COPD), hypertension, diabetes and pancreatic cancer [82, 231]. Nevertheless, these findings are only evident from a small number of empirical studies, with much of the research focusing on mental health outcomes following suicide bereavement [28, 80]. People bereaved by suicide are also at increased risk of suicide, depression and psychiatric admission as has been demonstrated by the findings of population-based registers/registry studies [80, 82, 84]. In terms of findings related to

substance use, two systematic reviews did not find an excess risk of substance misuse among people bereaved by suicide [80, 114] while a further case-control study did not find any differences in substance misuse between suicide and accident bereaved parents [82]. Even though one study found an increased risk in offspring bereaved by suicide, this analysis was not adjusted for pre-loss substance misuse [84]. Recent systematic reviews found that studies comparing stigma scores were methodologically problematic due to unadjusted analyses and that when research was specifically comparing suicide bereavement and other violent causes of death, the only differences noted were on rejection and shame [80, 109]. Notably, a large cross-sectional study in the United Kingdom found significantly higher levels of stigma, shame, guilt and responsibility in people bereaved by suicide compared to those bereaved by other sudden deaths in adjusted analyses [91].

4.2.2 Existing qualitative studies

Although there are a number of qualitative studies examining various aspects of suicide bereavement, including experiences [94], stigma [61] and sense/meaning-making [253], so far no study has examined both the physical and psychological experiences and support needs of people bereaved by suicide.

Subsequent to suicide bereavement, parents hiding their grief and emotions is a common theme throughout the literature [105, 254]. Fear of judgement and stigmatisation, was the most common reason cited for not seeking professional support following a suicide bereavement [104]. Similarly, parents describe struggling to speak about their child in public, as they felt it is frowned upon and is

too morbid [105]. This avoidance of grief-related emotions may prevent relatives from engaging in meaning-making, whereby they assimilate the death of their loved one into their new reality [255]. A lack of engagement in meaning-making may increase the risk of developing complicated grief [65, 105, 256]. While bereavement due to suicide and sudden death can be devastating for families, adjustment to the death is still possible. Talking about the deceased is thought to be an important part of the grief process and some parents have found it valuable to recall the deceased as he/she had been [68]. An interpretative phenomenological study identified that adults bereaved by suicide can undergo posttraumatic growth (PTG) [257]. PTG can be defined as heightened levels of personal development reached in the aftermath of trauma [258] and is associated with better mental health outcomes in people bereaved by suicide [259]. People bereaved by suicide undergoing this process report developing greater awareness of their existence in the world and understanding what mortality means to them, facilitating a desire to make the most out of life [257]. PTG should be normalised so that the suicide-bereaved can explore how they have altered and changed without feeling further stigmatised or judged [257]. Sometimes, bereaved people may experience relief [54] following a family member's suicide if there was ongoing mental health and/or physical health problems over many years. It is therefore essential to understand the complex and sometimes contradictory experiences of suicide bereavement and grief in order to better help people express their emotions and potentially promote PTG.

4.2.3 Current study

It is clear that suicide bereavement has an impact on health and mortality, with those affected at increased risk of suicide and psychiatric admission [80, 82], yet most of this research is quantitative in nature. A more nuanced understanding of why these help problems arise is necessary. Qualitative research would best help in providing a more nuanced understanding of the pathways leading to poor health outcomes. In addition, qualitative methodologies will help develop a better understanding of the perspectives of the individual family members [51]. The current mixed-methods study, which is a follow-up to the Suicide Support and Information System - A Case-Control Study (SSIS-ACE), will address this gap in the literature. The aim of the SSIS-ACE study is to improve knowledge surrounding the specific psychosocial, psychiatric and work-related risk factors associated with suicide in Ireland. The SSIS-ACE study incorporates two interlinked case-control studies: one study comparing suicide cases with general practice patient controls, and one study comparing cases of high-risk suicidal behaviour with general practice patient controls. The SSIS-ACE study included suicide decedents as cases and relatives as informants to better understand the decedents risk and protective factors through a psychological autopsy interview approach. The current study includes relatives as cases to understand how being bereaved by suicide or an open verdict death has impacted them physical and emotionally. Therefore, the focus of the SSIS-ACE study was on the deceased, whereas the focus of the present study is on the family member and how they have been affected by the death. The primary aim of the current study is to follow-up relatives bereaved by suicide who had been recruited for the SSIS-ACE study, to examine how family members have been

physically and psychologically affected by a relative's suicide. A secondary objective of the study is to describe the support needs required by family members bereaved by suicide. Specific objectives for this study are as follows:

1. To understand the pathways by which physical and mental health problems might arise in family members bereaved by suicide.
2. To examine the broader familial and social impact of suicide bereavement for family members.
3. To examine participants' experiences of health and support services and to understand what service provisions they consider important for the needs of family members after a suicide bereavement.
4. To assess emotional wellbeing among family members following suicide bereavement.

4.3 Methods and Analysis

4.3.1 Theoretical approach

Pragmatism was chosen as the most appropriate philosophical underpinning for this study. Pragmatism aids in understanding how quantitative and qualitative methods can be combined successfully to best answer particular research questions [260]. Pragmatism was chosen as an approach for the current study, as it was anticipated that multiple methods would be required in order to fully address the research objectives. A social constructionist perspective was adopted as the theoretical perspective for analysis in the current study. This theory posits that social processes underlie or are the building blocks for how one understands and

interprets the world. It is further acknowledged that this perspective sees reality as something that is dependent on what knowledge one is exposed to through social, historical or political interactions [187]. One must begin a process of meaning-making and a reconstruction of a new reality following a loss [261]. This process can be especially difficult for family members bereaved by suicide due to unique factors associated with suicide bereavement. In summary, therefore it is critical to acknowledge and understand participants' social reality and how they have come to understand this reality as this can have a significant bearing on how adaptive or maladaptive their grief reactions become, thereby affecting both psychological and physical health outcomes.

4.3.2 Study design and setting

This exploratory mixed-methods study is a follow-up to a larger case-control study, which is examining the psychological, psychiatric and work-related factors associated with suicide in Ireland (SSIS-ACE, 2014-2017). The SSIS-ACE study began in January 2014 and will be complete by March 2017. The current study began in April 2016 and is envisaged to be completed by April 2017. Participants for the qualitative aspect of this study are drawn from the larger SSIS-ACE study. Interviews are conducted either at the offices of the National Suicide Research Foundation in Cork, in the participant's home or in a neutral location. Only the researcher and the participant are present during the interviews. The location of the interview is determined by the participant according to their preference.

4.3.3 Sampling

All participants who completed the SSIS-ACE interview and who consented to further follow-up are invited to take part in the follow-up study. There was no relationship established prior to the study commencement. Participants were originally approached to participate in the SSIS-ACE study on the basis of being next-of-kin of persons who died by suicide or probable suicide. It is not unusual in suicide research to consider open verdict deaths, as research suggests a substantial number of these are thought to be suicides [262-264]. Open (undetermined deaths) and narrative verdicts that met the Rosenberg criteria [265] for a probable suicide are eligible for inclusion in the current study. The Rosenberg criteria for the determination of suicide states that a death must have been self-inflicted, which may be determined by a number of means including autopsy, toxicology, psychological evidence and decedent and witness testimony. Secondly, there must be evidence that the person intended to kill him/herself and understood the outcome of their actions. Evidence of intent can include explicit verbal or nonverbal expressions of intent to take one's life but can also include implicit or indirect expressions of intent to kill oneself, including [265]:

- Inappropriate or unexpected preparations for death by the deceased,
- Expressing farewell or a desire to die or acknowledging impending death,
- Expression of hopelessness,
- Expression of significant emotional or physical pain or distress,

- Efforts to learn about or procure means of death or to rehearse fatal behaviour,
- Precautions to avoid rescue,
- Evidence that decedent recognised high potential lethality of means of death,
- Previous self-harm,
- Previous threat of suicide,
- Stressful events or significant losses (actual or threatened), or
- Serious depression or mental disorder

A potential participant is excluded if they are aged younger than 18 years, if contact is deemed to pose a risk to the safety of the researcher (likely intoxication; history of or potential for violence) or the informant, or where capacity to consent may be limited due to cognitive dysfunction or severe mental illness. Recruitment will proceed to the point of data saturation, which is envisaged to involve interviewing and analysing transcripts from 15-20 participants. The use of eligibility criteria (Table 4) together with the inclusion of consecutive cases of suicide and probable suicide will provide a diverse sample of people bereaved by suicide.

Table 4: **Eligibility criteria for the selection of family members bereaved by suicide/open verdict**

Inclusion criteria
1. Must be aged 18 years or older 2. Must have consented for future contact from research team during the larger case-control study 3. Must have experienced the suicide/undetermined death of a relative
Exclusion criteria
1. If contact is deemed to pose a risk to the safety of the researcher (likely intoxication; history of or potential for violence) or the informant 2. If capacity to consent is limited due to cognitive dysfunction or severe mental illness, identified via collaborating with coroners and members of the police force when necessary

4.3.4 Recruitment

As of April 2016, participants bereaved by suicide, who previously took part in the SSIS-ACE study, are invited by letter to participate. The letter explains that the researcher will contact the family member again 10 days after receipt of the letter to verify if there is a need for support and to provide further details about the study. It is clearly stated that the family member can inform the researcher (in writing or by telephone) if they do not wish to receive any further contact. The focus of the first telephone contact is to verify again if the family members would like to receive support. AS facilitates access to support for participants based on their specific needs. This is done in consultation with a trained psychotherapist (PI, Prof Arensman). The researcher also verifies if currently there are members of the family who are in need of support that has not yet been arranged. AS contacts each

participant by phone 2-3 weeks after the conclusion of the interview to discuss any reflections or needs for support they may have following the interview.

4.3.5 Wellbeing (DASS) Scale

To assess family member's affective state, their wellbeing has been assessed using the 21-item version of the Depression Anxiety and Stress Scale (DASS - 21) [266]. This data was collected as part of the SSIS-ACE study, where data collection occurred between June 2014 and September 2016. This data will be presented together with the qualitative interview data in the full publication in order to provide mental health, physical health and wellbeing outcomes for family members bereaved by suicide. The depression subscale covers dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia and inertia. Items related to anxiety are autonomic arousal, skeletal musculature effects, situational anxiety and subjective experience of anxious effect. Finally, items related to stress are difficulty relaxing, nervous arousal, being easily upset, irritability and impatience [266]. This scale was completed at the end of the interview with the SSIS-ACE study. The DASS scale has been shown to successfully differentiate between the three negative affective states [266]. In addition, this scale is consistent in both clinical (those presenting themselves to anxiety and stress clinics for assessment and treatment) and non-clinical (community volunteers) samples [266]. The scale has also been demonstrated to have excellent internal consistency in a large clinical sample, with the following Cronbach's alpha value of 0.96, 0.89 and 0.93 for Depression, Anxiety and Stress, respectively [267]. A

further study of a clinical sample found similar Cronbach's alpha values of 0.97, 0.92 and 0.95 for Depression, Anxiety and Stress, respectively [268].

4.3.6 Interviews

Interviews commenced in April 2016. Semi-structured interviews, with the use of a topic guide (Table 5), are being conducted. Interviews take place in one sitting. This data will help to provide a comprehensive description of the sample in the full publication. Demographic data collected during the interview includes gender, age, relationship to the deceased, ethnic origin, religion, marital status, employment status, education level and profession. Before the commencement of each interview, AS explains that the current research is essential due to the limited research conducted into the physical and psychological health effects of suicide and sudden death bereavement on family members in Ireland. The duration of each interview is approximately 1.5-2 hours. The aim of the interviews is to gain an in-depth understanding of the personal, familial and social impact of suicide bereavement on family members. The topic guide serves to guide the interviews, while not being prescriptive in nature. This allows scope to iteratively develop the topic guide in order to deal with issues that are most relevant to participants.

Participants are contacted 24 hours prior to the interview to ascertain if it is still convenient to meet with AS. Interviews are audio-recorded with permission of the participant. Field notes and memos are taken in order to provide context or to document initial thoughts or emerging themes identified by the interviewer. Characteristics and reasons of those who decline to participate are noted and will be reported in the full publication.

4.3.7 Data management (memos, field notes, verbatim transcription etc.)

Interviews are transcribed verbatim by AS and other internal research staff. All participants are informed that an additional researcher may listen to the recording but are not provided with any additional information or have subsequent involvement in the study. The names of participants are replaced with pseudonyms when each interview is transcribed. Field notes are taken after interviews, which will facilitate the analysis process. A reflective journal is used to convey the main issues raised in the interviews, and will serve as preliminary analysis of the data.

4.3.8 Data analysis

Quantitative analysis

Participant demographic information and descriptive statistics, including mean scores, will be calculated for the wellbeing data and will be presented in the full publication.

Qualitative analysis

Data will be analysed using thematic analysis. Thematic analysis was chosen as it allows for a theoretically flexible approach, while also being a flexible tool to analyse data in a rich and detailed way [201]. Thematic analysis will be carried out in six phases: familiarising oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and finally, compiling a report of the analysis [201]. Themes will be derived from the data. Data saturation is a complex element of qualitative research and one that has been the focus of much debate and discussion [269-271]. While it is somewhat difficult to determine

sample size for qualitative research *a priori*, it is nonetheless an increasingly important element of quality control. The initial analysis sample will total twelve interviews. This number was deemed adequate from previous research into the most likely point at which data saturation is reached, given a relatively homogenous sample [271]. The stopping criterion will be set at a further three interviews, in order to ensure data saturation has been reached [269]. Analyses will be facilitated by the use of NVIVO 11 to organise the data. AS will primarily code the interview transcripts to generate overarching themes to analyse and interpret the data. A second researcher will crosscheck codes generated by AS for a number of interviews in order to ensure credibility and consistency. A description of the coding tree will be provided for transparency. Quotations will be presented, together with the corresponding participant pseudonym to illustrate how each theme was derived from the data. Major themes and their related subordinate themes will also be illustrated. Due to the lack of standardised guidelines to report mixed-methods protocols, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist [272] will be utilised. This checklist was chosen as the qualitative component is the primary focus of this research [272]. It was not deemed appropriate to return transcripts to participants for comments or corrections due to the highly sensitive nature of the research topic.

4.3.9 Validity and reflexivity

Discordant findings or those that run contrary to generated themes will also be presented [273]. The first author of this protocol (AS) will conduct all of the interviews for this study. She is a PhD student, with a Masters in Public Health and

is experienced in the area of mental health research. AS has received specialised in-house training from the National Suicide Research Foundation (NSRF) in preparation for conducting these interviews. This training has included how to communicate with people at risk, understanding the risk and protective factors associated with suicide and identifying and effectively dealing with someone at risk of suicide. The researcher receives weekly supervision from the PI, Professor Arensman. Prof Arensman is a trained psychotherapist who is specialised in suicidology and can assess individual cases if necessary. Prof Arensman will undertake any clinical needs assessment with participants, if necessary, in consultation with AS. The use of member checking or respondent validation was deemed inappropriate given the sensitive nature of this research.

Table 5: **Topic guide for family members bereaved by suicide/undetermined deaths**

Introduction	**Prompts**
▪ Family member's relationship with deceased	How did you spend time together? What was that like for you?
Impact of bereavement on family member	
▪ How they felt physically in the immediate aftermath of relative's death	Were there any physical symptoms? How did this affect you physically?
▪ How their physical health was before and since their relative's death	Presence of or new diagnosis of health condition Worsening of existing health condition Changes in diet, exercise, smoking, sleeping patterns and substance use
▪ How has their mental health was before and since their relatives death	Feelings of stress or worry New diagnosis of health condition Worsening of existing health condition
▪ How has their sense of wellbeing been since their relative's death	Experiencing positive thoughts Experiencing negative thoughts Optimism regarding the future
▪ Had deceased ever harm themselves before? ▪ How did that make them feel?	Were there any physical symptoms? How did this affect you physically?
Familial and social impact of bereavement	
▪ How the death has affected their life	Social life/work life Outlook on life
▪ How the death has affected the family	Changes in familial relationships
▪ How possible physical illnesses experienced by the family member interviewed after the death has affected their social/work life	
Postvention	
▪ What supports they received from additional family and friends after the death of the family member ▪ Any support services they encountered, whether they found it helpful/unhelpful and why ▪ Any particular service they would like to see in *immediate aftermath* of relative's death ▪ Any particular service they would like to see in *medium to long-term* following relative's death ▪ Do they have a message for: - Healthcare professionals? - Mental health services or counsellors? - Others who have been bereaved? - People contemplating suicide? Anything to add before conclusion of interview?	

4.4 Ethics and dissemination

This research has been granted ethical approval from the Clinical Research Ethics Committee of the Cork Teaching Hospitals. Full consideration has been given to the ethical issues which are outlined herein.

4.4.1 Respect for autonomy

Participants have given their written permission as part of the previous SSIS-ACE study to be re-approached in the future by a member of the research team. Prior to the commencement of the interview, it is explained that this study is a follow-up to the SSIS-ACE study that they previously took part in. The reasons for carrying out this research is explained to participants. It is explained to participants that confidentiality will be maintained within the research team, but will be broken in certain circumstances, including disclosure of child sexual abuse or threats to harm oneself or someone else. Before initiation of any interview, the participant is asked to carefully read through a detailed participant information sheet. They are if they understand the detailed information sheet and any questions they have are answered by the researcher. They are then be asked to complete a consent form and given a copy of this to keep. The minimum age for a participant is 18 years of age.

While those who are approached to participate in this study have given consent to future contact, it is clearly explained to them that there is no obligation to participate. In addition, it is highlighted that they are free to withdraw from the study at any time. Each person in the study will be offered facilitation of support by AS in consultation with the PI.

4.4.2 Beneficence and non-maleficence

Due to family history of suicidal behaviour, participants are at increased risk of suicidal behaviour themselves [34]. AS has undertaken specialised in-house training from the National Suicide Research Foundation based in Cork, in relation to responding to distress and risk in the context of telephone and face-to-face contact with participants and in identifying the indicators of acute suicidality. If necessary, AS can facilitate assessment by a psychotherapist (PI; Prof Ella Arensman).

For family informants bereaved by suicide, being approached to take part in a research study may be perceived as positive [68, 274, 275]. Benefits include facilitation of additional support when required, and the opportunity to discuss their relative with a trained interviewer in a supportive atmosphere. The family informants may also derive satisfaction from contributing to the evidence surrounding the experiences and support needs of people bereaved by suicide. A recent study of interviews with vulnerable populations explored experiences of participating in suicide and self-harm research. They found that participants were far more likely to derive benefit from participation than to experience negative effects [276]. A recent systematic review sought to investigate the commonly held perception that asking about suicidality in either a research or clinical setting can increase suicidal tendencies. The review concluded, that acknowledging and talking about suicide can actually reduce, rather than increase suicidal ideation. Moreover, talking about suicide and suicidal ideation may lead to an improvement in mental health in treatment-seeking populations [215].

4.4.3 Dissemination

The findings of this research will be disseminated to regional, national and international audiences through publication in peer-reviewed international journals and presentations at scientific conferences. The authors will produce one main mixed-methods outcome paper from this study on the analysis proposed, with the possibly of a further paper exploring the impact of the inquest process on family members, depending on time constraints. This study also forms part of a PhD thesis for AS.

4.5 Conclusion

The main aim of this research is to examine how family members have been physically and psychologically affected by a relative's suicide, while also providing an in-depth description of the impact of the death on their personal, professional, familial, and social lives. In addition, a description of the support service needs required by family members bereaved by suicide serves as a secondary objective of the study.

Chapter 5. What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland

AILBHE SPILLANE

KAREN MATVIENKO-SIKAR

CELINE LARKIN

PAUL CORCORAN

ELLA ARENSMAN

Published as: Spillane A, Matvienko-Sikar K, Larkin C, Corcoran P, Arensman E. **What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland.** *BMJ Open* 2018, **8**(1).

5.1 Abstract

Objectives: Research focussing on the impact of suicide bereavement on family members' physical and psychological health is scarce. The aim of this study was to examine how family members have been physically and psychologically affected following suicide bereavement. A secondary objective of the study was to describe the needs of family members bereaved by suicide.

Design: A mixed-methods study was conducted, using qualitative semi-structured interviews and additional quantitative self-report measures of depression, anxiety and stress (DASS-21).

Setting: Consecutive suicide cases and next-of-kin were identified by examining coroner's records in Cork City and County, Ireland from October 2014 to May 2016.

Participants: Eighteen family members bereaved by suicide took part in a qualitative interview. They were recruited from the Suicide Support and Information System: A Case-Control Study (SSIS-ACE) where family members bereaved by suicide (n = 33) completed structured measures of their wellbeing.

Results: Qualitative findings indicated three superordinate themes in relation to experiences following suicide bereavement: (1) Co-occurrence of grief and health reactions; (2) disparity in supports after suicide; and (3) reconstructing life after deceased's suicide. Initial feelings of guilt, blame, shame and anger often manifested in enduring physical, psychological and psychosomatic difficulties. Support needs were diverse and were often related to the availability or absence of informal support by family or friends. Quantitative results indicated that the proportion of respondents above the DASS-21 cut-offs respectively were 24% for depression, 18% for anxiety and 27% for stress.

Conclusions: Healthcare professionals' awareness of the adverse physical and psychosomatic health difficulties experienced by family members bereaved by suicide is essential. Pro-actively facilitating support for this group could help to reduce the negative health sequelae. The effects of suicide bereavement are wide-ranging, including high levels of stress, depression, anxiety, and physical health difficulties.

Strengths and limitations of the study

- This study addressed a specific knowledge gap by examining the physical and psychological health effects of suicide bereavement on family members in Ireland
- The study covered consecutive cases of suicide, which increases the external validity of the outcomes
- This study screened open verdict deaths with validated screening criteria to identify probable suicides. Therefore, this study benefits from the inclusion of probable suicide cases that would otherwise have not been included in the study
- Physical health issues were self-reported and were not objectively measured

5.2 Introduction

Suicide is a significant global concern, with approximately 800,000 people taking their own lives every year [9]. For every death by suicide, an estimated 60 people are directly and intimately affected [277]. Recent research also indicates that 1 in 20 people have been exposed to suicide in the past year, and 1 in 5 people have been exposed to suicide during their lifetime [11]. Suicide bereavement is associated with a host of adverse mental health outcomes, including heightened risk of suicide [28, 31, 80], attempted suicide [28, 29, 174, 278], depression [82, 84], psychiatric morbidity [278] and psychiatric admission [82]. There is also emerging evidence from quantitative studies that family members bereaved by suicide may experience more physical health issues than those bereaved by other means [279].

Individuals bereaved by suicide had poorer general health [74, 75], reported more pain [74], reported more physical illnesses [72] and disorders including CVD, COPD, hypertension and diabetes [82]. In addition, suicide-bereaved family members visited a GP more often [72] and had significantly higher rates of outpatient physician visits for physical illnesses [82] than non-suicide bereaved individuals. Negative health outcomes provide an impetus for timely access to effective health services and psychosocial supports for those bereaved by suicide, many of whom may carry existing health adversities prior to the death [82].

Previous research has underlined the broader importance of access to support for those bereaved by suicide [112, 280]. In the aftermath of suicide, feelings of depression, anxiety, guilt, extreme sadness, anger and nightmares are often present and are associated with help-seeking in people bereaved by suicide [56, 163]. These acute effects can be long-lasting: the time point rated as the worst stage after a death is the first week for about one-quarter of suicide-bereaved individuals but many family members struggle with the loss for the first year and, in one-fifth of cases, up to and beyond three years [112]. Both formal professional support and informal support from friends, families and others are important during this time, and address different needs [116, 161, 281], and may be especially important for first-degree relatives [282]. Despite their acute needs, those bereaved by suicide are less likely than other bereaved individuals to receive informal support and immediate support following the death, and are more likely to experience a delay in receiving support [112].

Although a significant number of quantitative studies have examined the associations among suicide bereavement, physical health outcomes and access to support, these areas have rarely been examined from an experiential perspective using qualitative research in a general sample [59, 94]. Researchers are beginning to identify the need for further qualitative research on suicide bereavement [51], to take into account the inherent complexity of grieving and social processes [92]. Qualitative research can help to elucidate the lived experience of suicide bereavement, highlighting such areas as feelings experienced by those bereaved by suicide, the meaning-making process following bereavement, and the social context [58].

The primary aim of this research is to examine how people have been physically and psychologically affected by a family member's suicide. A secondary objective of the study is to describe the support needs required by family members bereaved by suicide. The current mixed-methods approach benefits from leveraging the advantages of both quantitative and qualitative methodological approaches [283], while being able to provide a more comprehensive and in-depth consideration of the research problem under investigation [284].

5.3 Methods

5.3.1 Study design and setting

This study applied a mixed-methods approach. The qualitative study was linked to a larger case-control study, the Suicide Support and Information System: A Case-Control Study (SSIS-ACE, January 2014-March 2017). Qualitative interviews were supplemented with quantitative data of suicide-bereaved family members'

wellbeing, which was collected as part of the larger case-control study. Further information on the study design has been reported elsewhere [285] and is available in Chapter 4.

5.3.2 Sample and recruitment

Qualitative study

A subset of the 33 participants over the age of eighteen who took part in the SSIS-ACE study and who consented for further follow-up were approached to take part in the qualitative study. At the time of the qualitative study recruitment, there were 29 participants in the larger study to sample from. Three of these did not provide written consent for further follow-up and one only wanted to be contacted again by the researcher that conducted the initial psychological autopsy interview. Therefore, 25 individuals were initially contacted via a letter. Nineteen participants agreed to the interview but one participant did not consent for the interview to be audio-recorded and was therefore excluded from the qualitative analysis. Therefore, eighteen interviews were conducted (female = 11; male = 7), which yielded a response rate of 75%. In one instance, two family members were interviewed together at their request. No repeat interviews were conducted. Interviewees were a spouse (n = 7), a parent (n = 5), a sibling (n = 2) and a child (n = 4). Full details of the recruitment process are illustrated in Figure 8. Mean time since bereavement during the qualitative interviews was 27.6 months (range: 15-38 months). Half of all family members interviewed (n = 9) found the deceased's body, while the other half (n = 9) were informed of the death by other family members or a member of the police force.

Quantitative study

The quantitative data outlined in this paper was collected as part of a larger case-control study (SSIS-ACE). In SSIS-ACE, a senior researcher reviewed records of consecutive suicides and open verdict files from inquests held by all coroners in Cork, Ireland over a 19-month period. Open verdict files that met the Rosenberg criteria [265] for the determination of suicide [265] were eligible for inclusion in the study as probable suicides [285]. Relatives were eligible to participate in an interview for the case-control study if they were well-acquainted enough with the deceased to provide detailed information with respect to the deceased's life and were over the age of 14 years. Family members were contacted by letter and then by telephone and invited to participate in the psychological autopsy interview. 'Psychological autopsy' is a specific research method which involves retrospectively collecting information on aspects of a suicide decedents life, including socio-demographics, previous self-harm, mental health, physical health, personality traits and treatment provided by health care professionals before the suicide [286]. This information is primarily gathered via structured interviews with family or friends of the deceased and also information obtained by health professionals who treated the deceased [286]. The study took into account elements of the psychological autopsy approach according to Conner and colleagues [287]. Thirty-four family members agreed to take part but one interview was not fully completed and was excluded from analyses. Therefore, full interviews were completed with 33 family members (44%). This response rate is similar to other psychological autopsy studies [288, 289]. The mean time since bereavement during the psychological autopsy interviews was 10.2 months (range: 6 – 21 months).

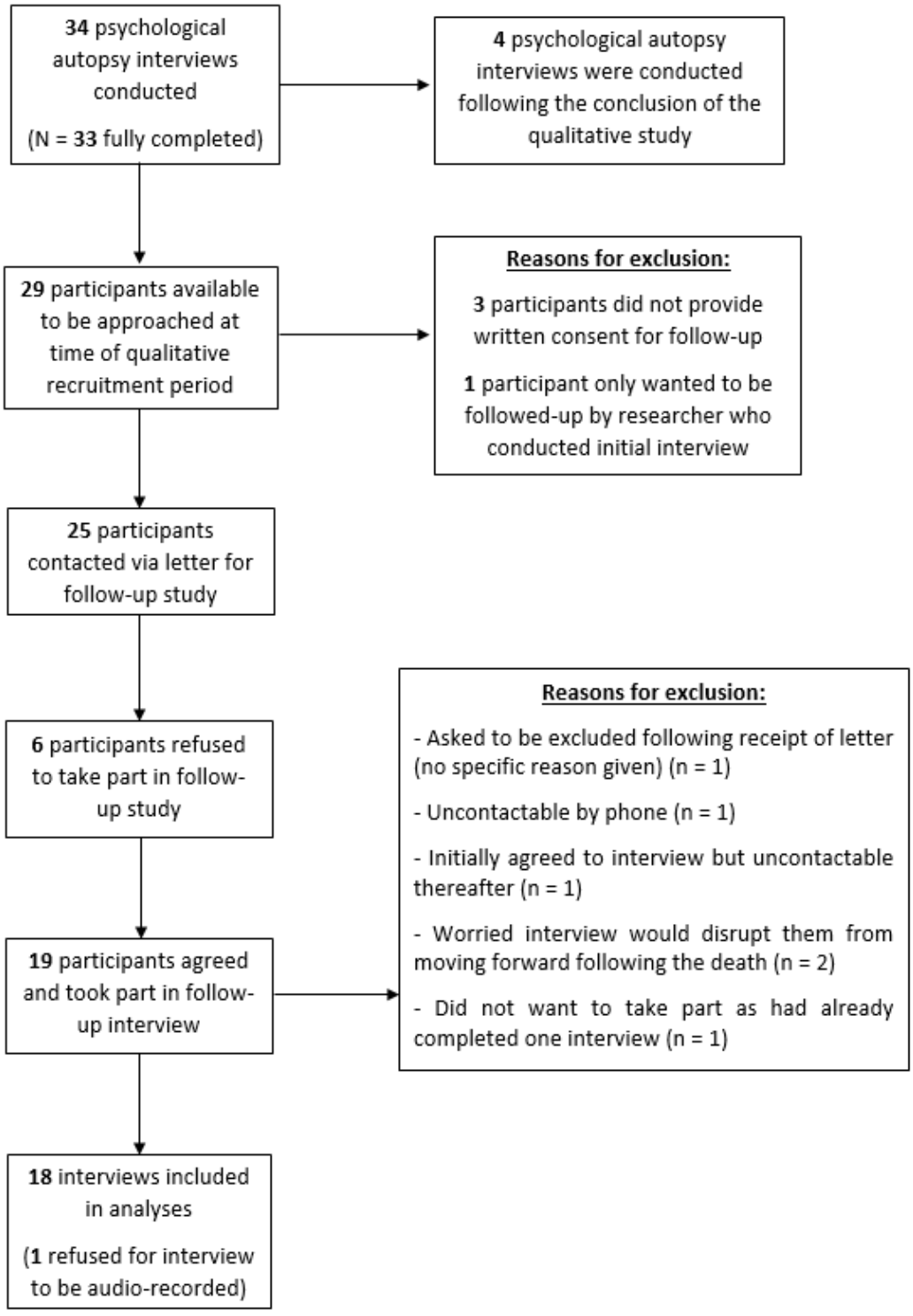


Figure 8: Flowchart of recruitment process for SSIS-ACE study and qualitative study

5.3.3 Measures

Qualitative study

Semi-structured interviews (n = 18) were conducted with the aid of a topic guide [285] in order to explore the experiences of people bereaved by the suicide. Interviews began by asking participants about the relationship they had with the deceased. The physical and emotional impact of the bereavement on them was then explored. The impact of the bereavement on the family and their social life was then explored. In addition, participants were asked about what support services they received and what they feel suicide-bereaved family members require in the immediate aftermath and the medium and long-term. Participants' permission to audio-record the interview was obtained. Thirteen interviews took place in the participant's home, two in university research offices and three at a neutral location selected by participants. All interviews took place in a single session. Mean length of interviews was 97.5 minutes (range 42-180 minutes).

Quantitative study

Family members' wellbeing was assessed using the 21-item version of the Depression, Anxiety, and Stress Scale (DASS-21) [266]. This scale assesses a participant's wellbeing in the past week. The scale successfully differentiates between the three affective states while also demonstrating consistency between clinical and non-clinical samples [266]. Median scores of depression, anxiety and stress, together with dichotomised variables were presented. Recommended cut-off scores to generate severity level ranges from normal, mild, moderate, severe and extremely severe categories [290]. However, due to small numbers in the

study, it was not possible to subdivide the sample by these five categories. Therefore, participants who met the criteria for depression, anxiety and/or stress at the levels between mild and extremely severe were collapsed into a category of above the "normal" cut-off and those below these scores were classified as "normal". Scores of ≥10 for depression, ≥8 for anxiety and ≥15 for stress were considered indicative of the presence of depression, anxiety, or stress respectively. These cut-off points have been used previously [266, 291] and are considered diagnostic indicators of potential diagnoses of depression, anxiety and/or stress [290, 292]. All statistical analyses were conducted using SPSS Version 22.

5.3.4 Data analysis

Qualitative study

Qualitative data were analysed using thematic analysis, which is a flexible method that allows for a variety of ontological and epistemological stances [201]. Thematic analysis involves a number of steps, including familiarising oneself with the data, generating initial codes, searching, reviewing and finally, defining themes [201]. Two authors (AS and KMS) coded the data and all stages of coding and development of themes were discussed with the research team. NVIVO 11 software facilitated the organisation of the data. In the absence of standardised guidelines to report mixed-methods research, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used and is available as Appendix 5.

Quantitative study

Descriptive statistics were used to present information on the age, gender and marital status of the suicide decedents, the method of suicide, if a suicide note was present and if there was a history of self-harm prior to the death. The age and gender of the family members and their relationship to the deceased were also presented using descriptive statistics. The characteristics of those interviewed for the follow-up qualitative study was compared with those who were not interviewed using Chi-Square and T-tests. Tests of normality indicated the data was non-normal and therefore non-parametric tests were utilised. Median scores and inter-quartile ranges were computed to describe the DASS-21 sub-scales and total score. A Mann-Whitney U test was used to test for differences in wellbeing for males and females and for people bereaved by a hanging or non-hanging suicide.

5.4 Results

5.4.1 Qualitative results

The 18 participants interviewed for the qualitative study did not significantly differ from those not interviewed regarding their gender ($p = .42$), age ($p = .56$), relationship to the deceased ($p = .69$), method of suicide ($p = .69$), their depression ($p = .49$), anxiety ($p = .08$), stress ($p = .59$) and total score ($p = .28$) on the DASS-21 scale. Three main themes were identified from the analysis process: 'Co-occurrence of grief and health reactions', 'disparity in supports after suicide' and 'reconstructing life after deceased's suicide'.

Co-occurrence of grief and health reactions

This first superordinate theme has two subordinate themes; 'immediate grief reactions' and 'enduring physical, psychological and psychosomatic health difficulties'. It was apparent throughout the interviews that physical, psychosomatic and psychological health experiences were often tied in with grief reactions, including blame, guilt and extreme sadness. Additionally, reactions were influenced by contextual factors, such as whether the participant found their family members body or whether they were informed of the death by others.

Immediate grief reactions experienced by participants ranged from guilt, blame, shame, sadness and relief. Participants often felt angry, both towards the deceased and also healthcare professionals who cared for the deceased. Conversely, two participants were not angry with their loved one for taking their own lives: one participant felt relieved their family member was no longer suffering psychologically and "felt she had escaped, she got out of it" and revealed it "alleviated some of the pressure" as "she was going to get worse and worse". Feelings of numbness were reported, with some participants not wanting to believe that their loved one was dead. One family member could not believe her sister was dead until she was given the chance to view her body. The delay in receiving the news about the death and viewing the body appears to have been especially difficult for her when acknowledging the death:

> "I went on then for the night like nothing had happened being honest with you, it was just numb and I didn't want to believe it until I saw it for myself. That was the Wednesday and we didn't see her until the Friday" (sibling)

Physical reactions experienced at the immediate point of bereavement included nausea, vomiting, breathlessness, numbness, memory loss, and an inability to stand as "my legs had just given way". One participant noted an immediate physical change to their health, as their heart rate escalated upon hearing about the death, which resulted in a diagnosis of hypertension the following day:

> "My heart rate went up straight away, through the roof. Actually, I had to see a doctor on *[sic]* the next day …and I'm on blood pressure control pills since then and I will be probably for the rest of my life" (sibling)

Other psychosomatic health reactions often noted by participants included physical pain, severe abdominal pains, loss of appetite, low energy levels and an inability to sleep in the immediate aftermath of the suicide. Some participants attributed their low energy levels to "the emotion" and "turmoil" associated with their grieving, while others felt it was due to their disrupted sleeping patterns. Reported problems with sleeping in the immediate aftermath varied in severity and duration. One participant described how they "couldn't sleep at all in the beginning" and another described how they tried to tire themselves during the day with walks in an attempt to sleep at night. A number of participants described experiencing distressing nightmares and visions of the deceased:

> "The son came in like and he was asking me what I was doing…[deceased] was talking to me, I was talking to him, he was there like, do you know what I'm saying…I thought he was, I was out of my bed and the whole lot" (parent).

Loss of appetite was reported by some participants as a psychosomatic reaction which often led to weight loss. Reasons for loss of appetite varied, including nausea due to flashbacks of finding the body or feelings of depression and despondence following the death:

> "Food-wise, I'm never hungry, I could stay without it all day…if I have a cup of tea and a bit of bread in the morning, I'm grand…Since himself has gone, you're just getting up in the morning doing the odd old thing, sure what's the point in doing it like" (spouse).

Finding the decedent's body appeared to induce more severe reactions in some cases which often extended to longer-term psychological impacts, including depression, anxiety, panic attacks, post-traumatic stress disorder, suicidal thoughts and suicide attempts.

> "I was depressed afterwards and I…still have this fuzziness in my head…it's very hard to explain. It feels like I'm stressed, stressed, like even small little things I can't deal with" (spouse)

One participant noted that they were not distressed at finding the body but described the scene as "calm", while also providing her with the opportunity to say goodbye to the deceased. It also allowed her to lay "down on the ground beside him and I put my head down on his chest…he was still warm and everything…I just stayed there for a long…I suppose it was my way of saying goodbye to him" (sibling).

The initial experiences of the majority of family members bereaved by suicide set the stage for enduring physical, psychological and psychosomatic difficulties in the months following the bereavement. Firstly, a number of adverse mental health outcomes were reported by family members including being more concerned about their own mental health, experiencing suicidal thoughts, suicide attempts, depression, anxiety and physician-diagnosed post-traumatic stress disorder (PTSD) in the months after the death. Nightmares, memory loss and intrusive images of the deceased were often present. One participant attempted suicide in the months after the suicide but emphasised they did not want to die but rather to escape the emotional pain and depression:

> "The morning that it happened, I just woke up and the feeling was so awful just inside my head, I thought like I just can't stick this anymore, so that's why I done *[sic]* it. It was just like to get away from this awful feeling" (sibling)

Ongoing intrusive images of the deceased and how they died were also reported by a number of participants. These images were not restricted to those who found the body but were also experienced by those who were informed of the death by others. One participant was preoccupied with the violent and traumatic nature of the death which resulted in her still being unable to sleep at night:

> "I'd be awake all night…and then I'm wrecked during the day. In the dead of night in the dark I think about how she done *[sic]* it…that would make me ill" (parent)

Additionally, a number of participants reported psychosomatic symptoms including, chronic feelings of low energy/exhaustion, persistent chest pains, breathlessness and physical pain which endured in the months after deceased's death. Their health status was often influenced by their health behaviours. Some family members noted "everything stopped, the world stopped that day" and tried but failed to resume their normal physical activity. For others, negative health behaviours, including excessive alcohol consumption and over-eating were used as a coping mechanism:

> "I'd drink I'd say [pauses] a bottle of vodka a day and a few pints as well… it's [the alcohol consumption] got a bit worse… I don't know if it's directly related to it or whether I'm using it as an excuse" (parent)

Importantly, some family members experienced an improvement in health behaviours, including, increasing their levels of physical activity which benefited fitness levels, healthy weight loss and aided the grieving process:

> "I went out to the dancing on a Wednesday night, I said make new friends you know…ya I've got fitter… That was a big boost for me to chat to people and pass away the week" (spouse)

Participants experienced a number of adverse physical health problems in the months after the deceased's suicide, including being diagnosed with hypertension, type 1 diabetes and diverticulitis. Participants attributed these diagnoses to the stress of the deaths:

> "I was hospitalised again this week with it…the doctor came in and said "you need to stop, you really need to stop, it's not cancer but it's going to affect you for the rest of your life…I know that's a consequence of dealing with [deceased's death]" (child)

Disparity in supports after suicide

The second superordinate theme has two subordinate subthemes; 'need for formal support' and 'need for informal support'. Participants described requiring a range of supports, however, these needs were often not fully addressed by the formal and informal support networks. This disparity in the needs and availability of support impacted on the participant's grieving process. Primarily, both formal and informal support were required to address intense psychological, psychosomatic and physical symptoms brought about by feelings of anger, guilt and blame:

> "I went to a bereavement information evening one night before I started any counselling, they put up on a screen physical symptoms and there was about 20 different things and I could tick at least 10 of them, shortness of breath, panic attacks, headaches, chest pains, physical chest pains…crippling abdominal pains…it's the anger that manifests itself in physical pain" (spouse)

Informal support, in the form of practical and emotional support from family and friends was as important as formal support to some participants. One participant described how "every night for so long my parents came over to stay every night", while another credited his wife as "the biggest support that I have received". He went on to say that if he was "just left to wallow in it", that he "would

have gone into a big black hole over it". Another participant emphasised the importance of both informal and formal support following a suicide:

> "The love of my family…"come home, we'll mind you" and they did, that was incredible and if some poor person doesn't have that, I really pity them. It's your family and your friends that gets you through that, and the counselling" (spouse)

Others described how family and friends helped with funeral arrangements, financial support, preparing or bringing food to the family member and helping with practical jobs around the house, such as maintaining the house and garden in the weeks and months after the death:

> "My friends from down the town would come up every day with food and I would always forgot they were going to do it [laughs] so they were coming up for about a month with food, they were so kind… I was embarrassed but I found it helpful" (spouse)

In some instances, fractured family relations impeded the family member receiving informal support. In those instances, the importance of formal support is paramount:

> "I have a sister but then we fell out over this, I don't have any contact with them…My problem is if I was feeling down, I wouldn't say it to them… [I'd be] very wary of people because I've said things and it's gone around town…I know I can trust my counsellor or my doctor or yourself there now" (spouse)

Another participant sought formal support as they "needed to speak to somebody outside of my family because I was upsetting everybody when I wanted to talk". Seeking formal support was imperative "to get the counselling, just taking time to reflect on everything and deal with it". Two participants noted respectively that there was "no pressure with money" from the counsellor and if they didn't have "the money that day she'd say give it to me when you have it". A number of participants spoke about having to stop formal support due to financial reasons, with one participant stating that there "should be free counselling for people bereaved by suicide":

> "I hadn't any steady money coming in, my illness benefit had finished and stuff like that…So that's the reason I finished up with him [counsellor]" (spouse)

The understanding and flexibility of some bereavement counsellors following the suicide were hugely valued by participants. However, not all experiences with formal support were positive, with one person noting that the counsellors were "too shocked to deal with me", while another said the counsellor "had the clock ticking". Participants noted that nobody proactively contacted them to offer formal support. This point is particularly salient as many spoke of being unable to seek help themselves or were unsure of what help was required. Feeling "so awful" and "you don't even know what you need" were significant barriers to seeking help while others had to "make the phone calls" and "run after all of them [the counselling services]". One participant spoke about how she didn't approach her own GP for help "but he never came with a list of things either to see how I was either, here's a

list of services you can avail of". She expected him to contact her and she explained "it's very hard yourself because you don't even know what you need". As a result, she was searching the internet "to find anything" and spoke about how "things aren't readily available I think in this day and age even though mental health is a really important thing".

Some participants wanted to attend a suicide bereavement support group as they felt counsellors could not "possibly understand what's going on in my head, like unless they've been through it". Others spoke of wanting to talk to others "with similar experiences" because "I think it's important for me to feel that I'm not the only one going through this". Additionally, one participant felt that she would benefit from it "because I do find I'm alone in my thoughts of it and I'm interested in getting other peoples stories so I can relate [to it]". However, no such support groups were available for any of the participants. A small number of participants reported that they did not require any formal support. One participant spoke with their husband about whether they needed counselling and both concluded that they can "hack this" on their own. Specifically, two participants who noted they did not require formal support were engaging in over-eating and excessive alcohol consumption as coping mechanisms.

Reconstructing life after deceased's suicide

Each participant was confronted with trying to comprehend, make sense of, and reconstruct aspects of their lives following their family member's suicide. Participants were particularly concerned with aspects of their wellbeing. Some spoke about finding it difficult to look positively to the future. Some participants

spoke about moving forward in terms of relationships. One participant spoke about how “he [the deceased] was the person I was supposed to spend the rest of my life with and looking to the future without him is…it’s hard for me to do”. She explains how people often say to her “you’re young, you’re going to find someone else…and have more kids”. However, she feels “that’s not for me now… I feel like I had that experience with him, and I feel like I don’t want that with anyone else ever”. Some participants spoke about seeking new relationships following their partner’s death. One participant spoke about how her friends and her counsellor broached the topic of a new relationship with her and she felt “why not…I have an awful lot of love to give”. Seeking new relationships and friendships was an important aspect of moving forward for some participants as “there was lots of times where I wouldn’t go out…but eventually I got it into my head, I went out to the dancing on a Wednesday night, I said make new friends…and then I met this new girl last year before Christmas”.

In terms of wellbeing, a small minority of participants were unable to experience positive thoughts following the suicide. One spoke about wondering “what’s the point in living…that’s what’s killing me”. Another participant spoke about she no longer socialises since her partner’s death and becomes depressed following constant rumination about his death:

> “I don’t socialise the way I used to before with other people…the tv might be on but I’d have no interest, I’d be just thinking away to myself and get depressed about it then” (spouse)

Conversely, the majority of participants spoke about how while they had negative thoughts, they were often able to balance these with more positive thoughts. One participant noted that simple things like turning on the radio so there's "something on in the house" or watching a DVD with his children helps as he "enjoys it when we're all together". Various other social activities and past-times such as walking and gardening were endorsed by some as helping during the grieving process. One participant spoke about how she uses yoga as a means of "being present" and to tell herself that she's "ok" even when "there are still images in my head" after finding the deceased. A further participant stated they were "very positive" and engaged in walking and "a bit of photography" which helped him in "hanging together fairly well".

Part of this reconstruction was also about reappraising what was important to them and how they thought about life. Some participants chose to make big life changes after the death, including moving homes, changing jobs or completely disengaging from the work environment:

> "I haven't gone back to my old job in [big city], you know life has changed and I was working long days and didn't really have a life, now, I'm looking back and saying, there's a little bit more to life than that you know?" (Spouse)

Two participants moved house soon after the death. One described that she "couldn't stay there" as the death occurred in the house. The other participant was forced to sell the house to pay off the debts the deceased had accumulated but had hidden from his partner. The participant felt a sense of rejection and betrayal that

the deceased didn't trust her enough to speak to her about their spiralling debts. She would have "toughed it out and said to him ok what are we going to do about it" but she feels he was afraid to tell her as "I suppose he thought I'd leave him". Three participants were in the process of selling their properties or had a strong desire to move at the time of the interview as one felt she could not "move forward while I'm in this house presently" due to her experience of visions of the deceased in the house.

5.4.2 Quantitative results

Characteristics of decedents and family members

Characteristics of the 33 suicide decedents and family members bereaved by suicide are presented in Table 6. The majority of suicide decedents were male (72.7%), aged 40-59 years (42.4%), were single (42.4%) at the time of death, and died by hanging (57.6%). While, just over half of the suicide-bereaved family members were female (54.5%) and aged between 40-59 years (57.6%). The most commonly represented kinship was partner/spouse (36.4%). The majority of suicide decedents were educated to secondary school level (39.4%), followed by one quarter (27.3%) and one fifth (21.2%) were educated to post-leaving certificate and third level, respectively. The majority of suicide decedents (42.4%) were employed/self-employed prior to their death. Data for the other educational and employment categories were not presented to maintain confidentiality. Hanging was the most common method of suicide (57.6%), with over half of the sample having a history of intentional self-harm prior to their suicide (54.5%). Just under a half of suicide decedents (45.5%) left a suicide note.

Table 6: **Characteristics of suicide decedents and suicide-bereaved family members (n = 33)**

	Suicide decedents N (%)	**Family members N (%)**
Sex		
Male	24 (72.7)	15 (45.5)
Female	9 (27.3)	18 (54.5)
Age		
18-39 years	9 (27.3)	7 (21.2)
40-59 years	14 (42.2)	19 (57.6)
60+ years	10 (30.3)	7 (21.2)
Interviewee's relationship to deceased		
Partner/Spouse		12 (36.4)
Parent		7 (21.2)
Sibling		9 (27.3)
Child		5 (15.2)
Marital status		
Single	14 (42.2)	
Married/co-habiting	12 (36.4)	
Widowed/divorced/separated	7 (21.2)	

Wellbeing outcomes (DASS-21 scale)

Median scores on the DASS-21 were highest for stress (Mdn = 12.00, IQR = 11.00), followed by depression (Mdn = 4.00, IQR = 8.00) and anxiety (Mdn = 2.00, IQR = 5.00). Nearly one-quarter of the sample (24.2%) had scores that indicated the presence of at least mild levels of depression. One in four suicide-bereaved family members (27.3%) had scores that indicated the presence of at least mild levels of stress. Just under a fifth of participants (18.2%) had scores that indicated the

presence of at least mild levels of anxiety (Table 7). These outcomes refer to participants' wellbeing in the week before the interview.

Table 7: **Descriptive statistics of DASS-21 scale scores**

	Median (IQR)	**Range**	**Above "normal" cut-off N (%)[1]**
Depression score	4.00 (8.00)	0-34	8 (24.2)
Anxiety score	2.00 (5.00)	0-24	6 (18.2)
Stress score	12.00 (11.00)	0-28	9 (27.3)
Total score	18.00 (26.00)	0-76	

A Mann-Whitney U test revealed no significant difference in the levels of depression (p = .47), anxiety (p = .37) and stress (p = .81) between suicide-bereaved males and females (Table 8). A Mann-Whitney U test also revealed no significant differences for levels of depression (p = .43), anxiety (p = .45) and stress (p = .61) between those bereaved by hanging and non-hanging suicides (Table 8).

Table 8: **DASS-21 median rank scores by gender and method of suicide**

	Males N = 15 **Median (IQR)**	**Females** N = 18 **Median (IQR)**	**p**	**Hanging** N = 19 **Median (IQR)**	**Non-hanging[2]** N = 14 **Median (IQR)**	**p**
Depression score	4.00 (10.00)	4.00 (7.00)	.47	4.00 (6.00)	4.00 (13.00)	.43
Anxiety score	2.00 (2.00)	3.00 (14.00)	.37	2.00 (6.00)	2.00 (6.00)	.45
Stress score	12.00 (12.00)	11.00 (11.00)	.81	10.00 (10.00)	13.00 (13.00)	.61
Total score	18.00 (26.00)	18.00 (32.00)	.93	18.00 (14.00)	19.00 (29.00)	.74

[1] Scores of ≥10 for depression, ≥8 for anxiety and ≥15 for stress
[2] Includes every other method besides hanging

5.5 Discussion

5.5.1 Principal findings

The qualitative and quantitative aspects of this study provide insight into the health impacts of suicide bereavement on family members. The qualitative component of the study provides additional over-arching evidence of the unique grief processes associated with suicide bereavement, including shame, guilt and responsibility, compared to bereavement by other modes of death. The qualitative study further addresses a significant gap in the literature by exploring the physical, psychosomatic health experiences and health behaviours of suicide-bereaved family members. Results from the quantitative component of this study indicate that a sizeable minority of suicide-bereaved family members experienced elevated levels of depression, anxiety, and stress. Other empirical studies have found similar rates of depression and anxiety amongst suicide-bereaved people to the current study, with one study finding that 18% of the sample were moderately to severely depressed, as measured on the PHQ-9, while 21% reported anxiety symptoms on the GAD- 2[213]. Furthermore, the prevalence of depression in family members bereaved by suicide was reported in previous studies as 30.5% [82] and 23% [85]. Other studies of nonclinical samples of adults had lower median scores on depression (median: 3), anxiety (median 2), stress (median 8) and total (median: 13) DASS-21 scores when compared to the suicide-bereaved median scores found in this study [293-295]. Therefore, this indicates that those bereaved by suicide may have higher rates of depression, anxiety and stress compared to nonclinical adult samples.

One possible explanation for the lower than expected prevalence of depression, anxiety and/or stress in our sample may be selection bias. Those family members who chose to take part in the study may have had lower levels of psychopathology or difficulties with the grieving process than other bereaved family members, and therefore may have been more likely to take part in the study. One recent population-based study compared suicide-bereaved parents with matched non-bereaved parents: 20.5% of suicide-bereaved parents refused to take part or to complete the study on the grounds of distress or ill-health, compared to just 7.6% of non-suicide bereaved parents [213]. This suggests that those who agree to take part in suicide bereavement research may be in better health than those who declined to participate. Consequently, the number of suicide-bereaved people experiencing high levels of depression, anxiety, and/or stress in this study and other empirical research may be an underestimate of the true figure. Findings from the qualitative interviews indicate that the initial feelings experienced by family members bereaved by suicide include disbelief, shock, blame, guilt and anger. These mirror findings from other qualitative studies [58]. Our qualitative and quantitative results indicate that suicide-bereaved family members experience a number of adverse psychological problems including, depression, anxiety, panic attacks, suicidal thoughts, intrusive images, nightmares and symptoms described which are reminiscent of PTSD. In addition, a number of participants also experienced adverse psychosomatic health experiences including feelings of nausea, vomiting, chest pains, palpitations, physical pain, abdominal pains, and breathlessness. In some cases, these symptoms continued in the months after the death and were associated with diagnoses such as hypertension, diverticulitis and

type 1 diabetes. Bolton and colleagues [82] took a quantitative approach and similarly found that suicide-bereaved parents had significantly higher rates of CVD, COPD, hypertension, diabetes, depression and anxiety disorders compared accident-bereaved parents. Additionally, a recent systematic review noted that there is tentative evidence to suggest that suicide-bereaved family members have an increased risk for a number of adverse physical health outcomes compared to people bereaved by other causes of death [72, 74, 75, 82, 96]. Therefore, this study corroborates these previous findings that people bereaved by suicide can experience adverse physical and psychological health outcomes.

The quantitative and particularly the qualitative component of this study illustrate the difficulties encountered by family members bereaved by suicide and consequently, the support they require. Research compiled by Grad and colleagues [296] underlies the importance of those bereaved by suicide having the opportunity to seek support from outside the family. Some participants spoke of the desire to attend a suicide support group. However, there is little research on the effectiveness of these groups for those bereaved by suicide [154]. It was also clear from the interviews that financial difficulties in the aftermath of the suicide were unfortunately common and prevented many from accessing formal support services. Participants spoke about having to halt their counselling sessions due to a lack of money to pay for the service. Reasons for financial difficulties varied and included inheriting debts accrued by the deceased prior to the death or having to give up or take a break from work due to grieving difficulties. Another study found that duration of support was important, with 27% of people believing they required professional help for at least 12 months following the death. Furthermore, 25% and

17.4% reported needing support for at least two years, or for as long as required [282]. These points underlie the importance of not only providing timely and effective support to people bereaved by suicide but also support that does not preclude people due to their financial circumstances.

The findings from the semi-structured interviews corroborate the quantitative results of family members' wellbeing, as measured by the DASS-21 scale. The quantitative scale found that nearly one quarter of family members had scores that indicated at least mild levels of depression. Furthermore, one in four and nearly one in five had a least mild levels of stress and anxiety, respectively. The qualitative interviews provided a greater insight into these difficulties through participants' descriptions of visions/nightmares, suicidal ideation, suicide attempts and physician-diagnosed depression, anxiety and PTSD in the months following the suicide. Additionally, this mixed-methods study identified a gap in the literature relating to qualitative research specifically exploring the physical and psychosomatic health experiences in family members bereaved by suicide. Going forward, further quantitative research investigating the association between suicide bereavement and objective measures of physical health is required.

5.5.2 Strengths and limitations

This is the first mixed-methods study to specifically examine and explore the physical and psychological health implications of suicide bereavement from both a quantitative and a qualitative perspective. The mixed-methods approach and the comprehensive recruitment process involved is a key strength of this study. The quantitative data for this study was derived from the larger SSIS-ACE case-control

study which included consecutive cases of suicide and open verdict cases that met the Rosenberg criteria for the determination of suicide which were identified via examining coroner's records [265]. Basic information about the case and next-of-kin information was collected. Family members were initially contacted via letter and telephone to take part in a psychological autopsy study. Data on family members' wellbeing was collected at the end of the psychological autopsy interview. This data was analysed and forms the quantitative component of this mixed-methods study. Following their participation in the larger case-control study, those who provided written consent for follow-up were contacted by the first author of this paper to take part in an additional qualitative interview about their experiences following the suicide. Recruitment of the family members via coroner's records and the consecutive nature of the suicide and open verdict cases reduces the likelihood of selection bias, which is often a significant problem in research addressing vulnerable populations [297]. The validity of this research can be considered good as this research covered both confirmed suicide deaths and open verdicts deaths as these may in fact be hidden suicide cases [298-300]. Furthermore, researchers have recommended that such cases meeting criteria for a probable suicide should be included in future research studies [299]. The combination of quantitative and qualitative research provides a clear indication of the challenges and health problems encountered by family members bereaved by suicide.

While the numbers of suicide-bereaved family members in the study is modest, the quantitative results are similar to those obtained in larger studies, as previously stated [82, 85]. The interviewer for the qualitative component of the study (AS) did not conduct any of the interviews for the SSIS-ACE study, which

minimises the risk of interviewer bias in the mixed-methods study. This study has two main limitations. Firstly, family members' physical health experiences were self-reported and therefore do not constitute an objective measure. An objective measure of physical health would remove any potential for recall bias in participants' responses. However, the focus of the qualitative component of the study is to understand family member's experience of their own health, rather than objective health status. Secondly, the relatively small quantitative sample size did not allow for more sophisticated statistical analyses, including controlling for potential confounding factors such as closeness to the deceased, kinship and time since death which may have impacted on the results presented. Further mixed-methods research examining an objective measure of physical health would be a significant addition to the knowledge base.

5.6 Implications

Considering previous research in the area, this study adds to the existing knowledge-base in a number of ways. While the mental health outcomes of suicide bereavement have been well-researched, there has been a dearth of research specifically examining the physical and psychosomatic health outcomes of suicide bereavement from an experiential perspective. Several implications arise from this research for professionals seeking to support people bereaved by suicide. First, equal attention needs to be given to the physical and emotional sequelae following suicide bereavement by clinicians. This research suggests that one in four people bereaved by suicide will suffer elevated levels of depression and stress and just under one in five will have elevated levels of anxiety. Second, it was clear that, due

to mental and physical health difficulties, some people were not able to effectively identify or seek support. This underlies the importance of health professionals, coroners and any other professional to pro-actively facilitate support for those bereaved by suicide. This professional support is especially important when strained or fractured familial relations affect the quality of the bereaved person's informal support network.

Chapter 6. How suicide-bereaved family members experience the inquest process: A qualitative study

AILBHE SPILLANE

KAREN MATVIENKO-SIKAR

CELINE LARKIN

PAUL CORCORAN

ELLA ARENSMAN

Accepted for Publication by the International Journal of Qualitative Studies in Health and Well-being (December 2018)

6.1 Abstract

Suicide bereavement confers unique risk and distress. In several countries, bereaved family members are called on to attend an inquest, an official public inquiry into deaths caused by external factors. The current study aimed to explore how suicide-bereaved family members (n = 18) experienced the inquest process, through qualitative semi-structured interviews. Participants were identified via coroner's records and had previously taken part in a case-control study. Qualitative findings indicated four overall themes with respect family members' experiences of the inquest process: 'inquest as fearfully unknown', 'structural processes of the inquest', 'enduring public and private pain to obtain answers' and 'gaining answers and making sense'. Most family members experienced distress and fear as a result of several elements of the inquest process. Some participants had positive experiences but these did not outweigh the distress experienced by the majority of family members regarding their overall experience of the inquest process. Key recommendations include informing family members of the main aspects and purpose of the inquest process beforehand, adapting the process to maximize the privacy and comfort of the bereaved relatives, and restricting graphic evidence being heard, where possible, to minimise distress experienced by family members.

Keywords: Inquest, coroner, qualitative, suicide, bereavement, family members

6.2 Introduction

A suicide death, while an individual act, creates a 'ripple effect' which profoundly impacts familial [80], social [301] and societal networks. Meaning-making following loss is crucial, but can be especially complex for suicide-bereaved family members, [65, 67] as they struggle with mental, physical and psychosomatic problems, including depression, nausea, vomiting, diabetes and hypertension [82, 302, 303]. Feelings of guilt, shame, stigma and rejection are common [64, 74, 78, 91, 111], which can disrupt the meaning-making process. Support is crucial for people bereaved by suicide, yet they are less likely to receive informal support than people bereaved by sudden natural or unnatural causes of death [112].

Suicide registration procedures vary, with many countries in the European Union adopting either a medico-legal or coronial system. Countries that operate under the medico-legal system include Austria, Estonia, Germany and Hungary. Within the medico-legal system, a medical doctor must certify the cause of death, whereas the coroner is the certifier for countries operating under the coronial system, including Ireland and the Netherlands [304]. However, the coronial system in the Netherlands is slightly different, given that a forensic autopsy is not always necessary. However, in Ireland a forensic autopsy is always done following any injury death [304]. Many current and previous countries of the British Commonwealth use the coronial system to investigate suicide deaths and other deaths by external causes, where public inquests are held. However, little qualitative research exploring how the inquest process impacts on family members has been conducted [59, 106, 107], with most of the research conducted some forty

years ago [118-120]. Reviews of the coroner service [305] and services available for people bereaved by suicide [306] have been conducted in Ireland, but the experiences of family members following the inquest process are absent from both.

Many aspects of the procedures after a suicide can be distressing for family members, including the timing and setting of the inquest, presence of the media, insensitive media reporting of the suicide and the perceived invasion of privacy [59, 106]. The inquest process could help to provide some answers and facilitate meaning-making for bereaved family members, but this may not occur due to its public and potentially stigmatising nature [59]. This is one of the few studies which explores peoples' experiences of the inquest process following their family member's suicide.

6.3 Methods

6.3.1 Theoretical approach

Social constructionism was the theoretical underpinning of this study. Social constructionism posits that knowledge is constructed rather than created and that people psychologically construct their experiences through a social rather than an individual focus [307]. Society and social processes are therefore seen as the underlying mechanisms for how people comprehend and interpret the world around them [187]. The knowledge that an individual assumes is also inextricably linked to their exposure to social, historical or political processes [187]. Following bereavement, individuals are forced to reconstruct life and the world around them, while also engaging in a meaning-making process [68, 200, 261]. This reconstruction is inevitably tied to and influenced by our social world [261]. Research indicates

that people bereaved by suicide report more stigma and experience higher levels of guilt, shame and responsibility than people bereaved by sudden natural and sudden unnatural death [91]. Therefore, meaning-making following bereavement, especially suicide bereavement, does not occur in a vacuum and is shaped by one's social world. It is therefore critical to be aware that one's social reality may impact on how one reacts to a suicide bereavement, and consequently the inquest process.

6.3.2 Study design and setting

This is a qualitative study, which utilised semi-structured interviews with eighteen people bereaved by a family member's suicide. The data for this study was collected during interviews for a previously published mixed methods study [285, 302]. Semi-structured interviews were selected as the most appropriate data collection methodology as it allows for flexibility to discuss issues that may arise during the interview that require further probing. Since this area is understudied, semi-structured interviews provided the scope to explore family members' experiences in an in-depth way, while also providing a rich description of the phenomena under investigation, in this case, family members' experiences of suicide bereavement and the subsequent inquest process. Ethical approval was granted from the Clinical Research Ethics Committee of University College Cork.

6.3.3 Sample and recruitment

Between 2014 and 2016, consecutive cases of suicide in Cork, Ireland, were identified from coroners' records and next-of-kin were contacted, as part of the Suicide Support and Information System: A Case-Control Study (SSIS-ACE). Suicide-bereaved family members who participated in SSIS-ACE were also asked for their

consent to be contacted for the current study. Twenty-five individuals consented and were contacted via a letter. Nineteen participants agreed to the interview (response rate 76%) but one participant did not consent for the interview to be audio-recorded and was therefore excluded from the qualitative analysis. In one instance, two family members were interviewed together at their request. No one else was present during the interviews and no repeat interviews were conducted. Full details of the recruitment process and reasons for refusal are contained in a previously published mixed methods study [302]. Mean time since bereavement during the qualitative interviews was 27.6 months (range: 15- 38 months). The sample was comprised of 11 women and 7 men. Participants were partners (n = 7), parents (n = 5), offspring (n = 4) or siblings (n = 2) of the deceased. Participants were aged between 18-39 years (n = 3), 40-49 years (n = 6), 50-59 years (n = 5) and 60 years and older (n = 4). Most participants were in paid employment (n = 9), with a smaller number being unemployed (n = 4), retired (n = 3) or homemakers (n = 2).

6.3.4 Data collection

Written informed consent was sought prior to commencement of the interview. Participants' permission to audio-record the interview was obtained. All of the interviews were conducted by AS, from April 2016-January 2017. She is a PhD student, with a Master of Public Health and is experienced in the area of mental health research. AS received specialised in-house training from the National Suicide Research Foundation (NSRF) to conduct the interviews. Thirteen interviews took place in the participant's home, two in university research offices and three at a neutral location selected by participants. Facilitating participants to decide the time

and location of the interview assisted in putting them at ease and thereby improved the research process. Semi-structured interviews (n = 18) were conducted with the aid of a topic guide [285] in order to explore how family members bereaved by suicide experienced the inquest process. Table 9 summarises the main questions posed to participants regarding their experiences of the inquest process. This information was collected as part of an interview that was primarily exploring the physical and psychological health impact of the bereavement on family members bereaved by suicide [302]. It was explained to participants that the focus of the interview centred on the impact the suicide has had on their psychological and physical health, as well as their subsequent support service needs. Mean length of interviews was 97.5 minutes (Range: 42-180 minutes, SD: 44.2).

Table 9: Topic guide for exploring participants' experiences of the inquest process

Question	**Prompts**
How long was the inquest since *[deceased's]* death?	Was this length of time appropriate?
How did you feel in the run up to the inquest?	
Did you attend the inquest?	Why did you/not attend?
How did you find the inquest process?	Positive/negative aspects?
Was there anything about the inquest you particularly liked/disliked?	Timing, location, demeanour of coroner etc.
Did you find any information given at the inquest helpful/unhelpful?	Autopsy results etc.
Did you learn anything new/surprising at the inquest?	Autopsy results etc.
Was the inquest private or were other families there?	How did you feel about that? What would you have preferred?
Did the inquest help you to understand what	What is clearer/still uncertain?

happened around the time of *[deceased's]* death?	
Can anything be done to make the inquest process easier for family members?	

6.3.5 Data analysis

Thematic analysis was chosen as the method to analyse the data from the interviews because this is a flexible method that allows for a variety of ontological and epistemological viewpoints [201]. Thematic analysis represents a systematic framework to code qualitative data in order to identify patterns across the data [203]. Thematic analysis is especially useful for applied research that focuses on policy and practice or is not completely focused within the field of academia [203]. There are a number of discrete steps involved in thematic analysis, including familiarising oneself with the data, generating initial codes, searching, reviewing and finally, defining themes [201].

The topic guide (Table 9) was revised, where appropriate, after interviews to ensure the most pertinent questions were covered throughout the interview process. Field notes and reflections were completed after each interview and formed the basis for the initial analyses. Interview recordings were transcribed verbatim after each interview and initial coding was completed thereafter. Two authors (AS and KMS) coded the data, while each stage of the coding process and development of themes were discussed and reviewed with the research team. Specific consideration was given to discordant cases, whereby the inquest was perceived as positive/mostly positive. NVivo 11 software facilitated the

organisation of the data. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used and is in Appendix 5.

6.4 Results

A number of participants found aspects of the inquest process to be inappropriate, insensitive and traumatic. Some were also extremely apprehensive about the process and dreaded the inquest for some time before it occurred. While some described the overall process as 'fine', there were a number of troubling aspects of the inquest that left family members feeling uncomfortable.

Four main themes were identified from the analysis process:

- 'Inquest as fearfully unknown' – This main theme relates to participants describing a sense of foreboding or apprehension of the inquest that was largely driven by a lack of information about the inquest and its processes.
- 'Structural processes of the inquest' – Participants found some of the structural aspects of the inquest distressing, such as the timing of the inquest and having to hear graphic evidence about the circumstances of the death of their own or someone else's family member.
- 'Enduring public and private pain to obtain answers' – Participants found the public nature of the inquest distressing. Many felt inquests should be private, especially given the very personal nature of information shared about the deceased during the process.

- ‘Gaining answers and making sense’ – Some participants gained clarity about the nature of their family member’s death from the inquest process, which provided a sense of closure to participants.

6.4.1 Inquest as fearfully unknown

This main theme has one subordinate theme: ‘Lack of information fuelling heightened emotional reactions’

Lack of information fuelling heightened emotional reactions

Participants spoke of a sense of ‘foreboding’ as they waited for the inquest to happen and felt their ‘life was on hold’ until it was over. The inquest was described as ‘daunting’ and ‘extremely stressful’, with participants on ‘tenterhooks’ until it was over. Being ‘frightened’ and ‘very nervous’ of the inquest was largely driven by a sense of not knowing what the inquest entailed and what form it would take. Some participants were fearful after hearing stories of others’ bad experiences of an inquest, which sometimes led to misinterpretations of what the inquest would entail for them and their family:

> “I actually had somebody say to me that you’re going to be, they had experienced an inquest and that, I remember she actually kind of frightened me a bit. I was very nervous, she said you’re going to be, it’s like you’re going to be on trial. Like the family can hurl all sorts of questions at you and stuff and my brother was very nervous about that. But, it actually went off grand” (P1, partner)

This lack of information and misunderstanding of the inquest process left many family members in a state of distress in the run up to the inquest:

> "There were things about the inquest that I was completely freaked out about…whereas if I'd had more of an understanding, it was actually fine. It wasn't any hassle at all like. When I got through it, it was like 'jeez what was all that about'" (P16, partner)

Family members felt these heightened reactions could have been largely prevented if they had been given practical information about the inquest and what form the process would take:

> "Then they called me up and they asked a few questions but I had my statement so I was wondering why that wasn't enough and I thought wouldn't it be better instead of having this official inquest where they would come in if they had queries about your statement to ask then because ya it was very formal sitting up and swearing and everyone is looking at you and there was a full room the day I went and stuff. You're never prepared for, they don't tell you what happens, they don't prepare you for it" (P6, daughter)

Owing to a lack of practical information about the inquest process, some participants were not prepared for some of the formal aspects of the inquest, such as swearing on the bible, having to give evidence in a witness box and the courtroom setting, to be intimidating. These formalities often reinforced the notion of being 'on trial', which exacerbated grief and guilt reactions in the lead up to the inquest:

> "I remember being very traumatised because I had to go up to the witness box…I remember I was shaking and I was saying [to deceased] 'look at what you have me doing now' and that to me even now was the worst thing [becomes emotional]…the fact that the consequences of her death put me in a witness box to tell legally police and people that didn't know her, that she had made me do that is what really hit me you know" (P3, daughter).

In summary, this theme highlights the distress caused to family members as a result of not knowing what form the inquest would take. Many participants felt fearful of the inquest as a result, which intensified their grief reactions.

6.4.2 Structural processes of the inquest

This theme relates to some of the formal and structural processes of the inquest, such as the timing of the inquest and having to hear graphic evidence related to their own or someone else's family member. The timing of the inquest varied for the participants interviewed, with waiting times largely dependent on the presiding coroner and their workload. The majority of participants were passive with regard to the timing of the inquest, but a small minority of participants spoke of actively engaging with the coroner to have the inquest sooner.

Participants often spoke about the timing of the inquest, in relation to the length of time since their family members' death. Responses were mixed with regard to the most appropriate length of time from the death to inquest. Some felt 'the time scale was enough' as 'if it had been sooner it would have been a lot worse'. Some described how they needed the time to grieve and come to terms with the death before facing the inquest. One participant appreciated the long wait

to the inquest, as it allowed for administrative aspects following the death, such as the deceased's estate to be settled before the inquest took place. The participant felt they may have had a 'different outlook on it if it [inquest] had happened before the estate was settled'. However, others wanted to have the inquest sooner as the family could not get the 'suicide note and his clothes' back until the inquest was over'. Some had to wait nearly 12 months before their family member's inquest occurred. One participant spoke about how she was 'surprised' her family member's inquest occurred four months after the death as she 'didn't expect it [the inquest] [until] ages after [the death]'. A small number of participants pushed to have the inquest sooner as waiting for six months or longer was deemed too long:

> "The waiting for the inquest, that was [pause]…I think I pushed for it to be sooner, it was in June, but only for I ringing, it would have been after the summer holidays, September [pause]" (P1, partner)

Long delays for the inquest also prohibited a small number of participants from attending the inquest:

> "No I didn't [attend the inquest] 'cause that occurred a year later…I had an assignment or project at college due or I had to get some study done, I can't remember what it was but I didn't go to the inquest" (P8, son)

Some family members found it 'very shocking' and 'extremely stressful' that they had to listen to graphic evidence regarding the circumstances of their loved one's death, but also the circumstances of other cases. Specifically, some felt it was 'very traumatic' to watch and listen to other families as they were 'hysterical' listening to the details of their loved one's death:

> "One thing I found very very hard as well was…I had to sit in the room and listen to about 3 or 4 other people and their stories, and before mine had even started I was in tears only listening to other people because some guy died in a car crash, another one committed suicide by [names method]…so you had to sit there and listen to that…before they get to yours…I had to listen to a family that lost a young fella and his girlfriend had been there and she was hysterical listening to the whole thing, I thought that was very traumatic, just watching them, never mind how they were feeling" (P6, daughter)

In summary, some family members felt the long wait to the inquest was appropriate as it allowed them time to grieve and to come to terms with the death, while also providing space for administrative aspects of the death, including the deceased's estate, to be settled. In other instances, family members were dissatisfied with long delays, with a small number pushing to have the inquest sooner.

6.4.3 Enduring public and private pain to obtain answers

Inquests in Ireland are public and are usually held in a courthouse, but can take place in hotels or local halls. The majority of participants spoke strongly about the very public nature of inquests. A small number of participants described how their family member's inquest was the last of the day and therefore experienced a private inquest. They felt inquests should be 'closed' and only open to family members as it is 'a very private thing' and 'it is nobody's business' how the deceased died or the circumstances leading up to the death. One participant

described how some of her family members refused to go to the inquest for fear that it would not be private:

> "They didn't want to go because they had a fear that it was this public, and it can be public but in our case, it wasn't private but there was nobody there anyway. [Brother] was very annoyed that this was going to be a public…[Brother] works in [town where inquest was held] and he didn't want, he had a thing that it was going to be [crowded] like mass but I said nobody knows that it's [deceased's] inquest at 10am" (P3, daughter)

Because inquests are often scheduled in batches, family members may sit through several inquests before the one relevant to them takes place. Some participants considered themselves fortunate to be the only family members present during the inquest. This was often by chance if their family member's inquest was the last case scheduled for the day. One participant described how it was 'perfect' that 'we came in one door and we went out another' so that they were separated from meeting other families, 'as we had enough on our own plates'. One family member who had a previous adverse experience at an inquest for a non-suicide death felt strongly opposed to the presence of the media at inquests due to the danger of them publishing sensitive information about their loved one:

> "I remember the inquest for my *[names family member]*, there was an article in the newspaper afterwards and it said how he died in *[names location of death]*, and I thought it was awful. Nobody needed to know that…" (P10, sister)

Other participants spoke about how they would have found it distressing if other families were present, especially when intimate details about their loved one, including the detailing of the deceased's mental health difficulties and drug or alcohol addiction. One of the primary motivating factors for not wanting other families present was to preserve the intimate details of their loved one and the circumstances surrounding the death. Other participants voiced shame that private aspects of their loved one's life were laid bare for strangers to hear:

> "There was another family ahead of us…we heard all of their story which we didn't need to hear or want to hear…I think it was hard on that family because you could see that they were looking out, going out sideways, not looking at us because they knew that we heard…yeah it was suicide, well it was accidental suicide, she was an alcoholic and she fell down the stairs but the judge gave it out in detail what happened to her…things that we didn't need to know at all" (P14, mother)

This family member was especially nervous that alcohol or drugs could have been involved in her son's suicide, which she would have found shameful, especially if strangers were to know such details:

> "I know if it were our case and *[family member]* had fallen down the stairs through drink, I wouldn't like the family behind me to know all about our private business you know…*[town where deceased lived]* is a small place, we could have known them…I figured we would have kept that *[if alcohol or drugs were involved in suicide]* to ourselves, nobody else's business, what difference does it make, but as it happened, nothing happened but they

went into detail about that woman's death and her liking for drink and all that" (P14, mother)

The fear that family members may have known others at the inquest was not unique and was expressed by two other participants:

"If it was someone you knew and you didn't want them to know the details, you don't want everyone knowing what goes on either because it's local…they are hearing about private, what I think are very, very private details. Like as you said if something came out that you didn't know about, why would you want other people to know?" (P6, daughter)

This theme underscores the difficulties experienced by participants when the inquest was not private, but instead was attended by others waiting for their family member's inquest. Particular difficulties included not wanting others to hear intimate details about their loved one or the circumstances of their death.

6.4.4 Gaining answers and making sense

This theme has two subordinate themes; 'nature of the death and verdict returned' and 'learning new information'.

Nature of the death and verdict returned

Some family members were unsure of the nature of their loved one's death prior to the inquest and the inquest often provided answers to their questions. Some participants described how they did not know until the inquest whether alcohol or drugs were involved in their family member's death. Not knowing the circumstances surrounding the death often troubled family members as it called

into question whether the deceased actually intended to take their own life. Others worried that their family member was in pain or may have tried to call for help afterwards. Obtaining clarity on these issues during the inquest often served as a comfort for family members:

> "When they came out with the autopsy, if you look at the amount of stuff they found in the system, the only consolation was that she went to sleep 'cause she wasn't struggling or calling…the key thing was that she wasn't on the floor trying to find help. In fairness to *[state pathologist]*, she came over and explained this to us and she was really kind of, that this is what happened" (P13, father)

Together with the information collected and presented at the inquest, this helped some family members to better understand the circumstances of the death and come to a sense of closure regarding the death. In some cases, the evidence gathered indicated the deceased's careful planning of the suicide, which helped to ease feelings of guilt and blame that they could have prevented the suicide:

> "Yeah, the inquest was really the final closure on it altogether. There was no doubt about anything, about what the guards [police] found…That was the final bit of closure that said, we've taken all the evidence that has been gathered and they were able to lay out the sequence of events, so, for me, for me my engineering type mind, it was great to have them laid out and there was absolutely nothing that anyone could have done about it" (P4, son)

The inquest also provided most family members with a better understanding of the events that occurred before the death:

> "She had these panic attack tablets *[names tablet]*, she might have taken one or two over and above, she didn't know it like that's what they've put it down to. The alcohol in her system was only very small, I think it was only something like half a pint over the limit. In the inquest they said they wouldn't put it down to that" (P2, partner)

Conversely, one family member did not feel that the results of the autopsy mattered to him:

> "He's dead. So any extra information about the circumstances wouldn't make any change to me, I think. It wouldn't be of any value to me…what would be the difference if he died drunk or not? He's dead, he's gone. So, to me there is no difference really" (P18, brother)

The majority of family members described how a coroner returned a suicide verdict. An open verdict was given in three cases, which was primarily given due to the lack of physical evidence such as a suicide note and the specific method chosen. However, in one of the cases, the coroner noted that the deceased did take her own life but he was unable to return such a verdict because of the lack of empirical/physical evidence at the scene of the death. However, in one particular case, some members of the family welcomed the ambiguity of the open verdict as they did not want the stigma of a suicide verdict. These family members were not perturbed that a suicide verdict was not given as 'it's so personal':

> "They didn't give a verdict of suicide, this is what he said, there was no note…there was no physical evidence found…he said that, this poor woman was terrified of her life…and that she took her own life" (P3, daughter)

Learning new information

For some, the nature of the death and the intent of the deceased was clear. In these cases, 'the inquest was more about when the date he died rather than how he died'. For some, the inquest revealed new information about the deceased or circumstances surrounding the death. The autopsy sometimes uncovered physical health problems that the deceased had, which were unknown to them or the family. Hearing such unanticipated news out of the blue was often upsetting for the family:

> "Here is the stupid thing, at the inquest, *[pathologist]* told me that his heart was twice the size of a normal heart…I said 'wait a minute, did he have a problem with his heart' she said 'yeah, he was a walking time bomb', in other words, he probably would have died soon anyway…I said to myself, 'why did you *[kill]* yourself you stupid bastard', that was my reaction" (P9, partner)

The toxicology report often allowed family members an insight into the deceased's frame of mind. It sometimes removed ambiguity around whether the deceased really intended to take their own lives. For some, the presence of toxic levels of alcohol and medication, further reinforced to them that their family member's death was not an accident. For others, the absence of toxic levels of alcohol and medication, indicated to some family members that they did intend to take their

own lives, as they hypothesised that their judgement was not hampered by the presence of toxic levels of substances. Others gained further perspective into their family members' mental health difficulties as a result of evidence presented at the inquest:

> "That she was taking her medication and she was still having these bad thoughts, the medication wasn't working of course. We thought she had given up on her medication" (P17, mother)

To summarise, this theme highlights that the inquest can provide family members with additional information about their loved one, including their physical health and any medication or alcohol they had consumed around the time of death. This information can be helpful for some, as it may provide closure regarding the deceased's intent to take their own life, thereby lessening feelings of guilt and blame.

6.5 Discussion

This qualitative examination found that family members respond to the inquest process in many different ways but often experience the inquest process as traumatic in situations when it is conducted poorly. Additionally, the inquest may be perceived as traumatic if family members are not adequately informed of its purpose and the coronial process generally. Many family members spoke of being extremely apprehensive about the inquest in the months beforehand. This intense fear was driven by not knowing what the inquest would entail and others' perceptions of being 'on trial'.

The results of this study highlight that participants' responses to the inquest process are indicative of grief and trauma responses. The Dual Process Model of Coping with Bereavement posits that one needs to confront the pain associated with grief in order to work through the loss [308]. The loss-orientation aspect of the model refers to processing some of the aspects of the loss, including the circumstances and the events surrounding the death [308]. These aspects and the nature of the death generally is addressed during the inquest. For some, the inquest may be the first time the suicide-bereaved fully confront their new reality, with this confrontation often taking the form of having to give evidence or having to listen to graphic evidence about their loved one's death.

While this confrontation of the loss is difficult for the bereaved, avoiding both the reality of the death and isolating oneself from others may lead to prolonged or complicated grief [309]. Complicated grief is characterised by an intense yearning for the deceased, preoccupying thoughts, images or memories of the deceased, recurrent painful emotions about the death, including guilt and anger and avoiding situations, places or people that bring back the painful memories [310]. Given that the function of the inquest is to determine cause of death, family members may be subjected to hearing distressing details about the circumstances of the death, thereby potentially further adding to what can be already a traumatic experience. Complicated grief is also associated with protracted grief symptoms, suicidal ideation, PTSD, work and social impairment [311]. It is therefore critical that the inquest processes and procedures do not contribute to or exacerbate grief and trauma reactions of suicide-bereaved family members.

Although few studies have explored how the inquest process impacts family members bereaved by suicide, the findings corroborate the scant literature on the topic [106, 107], especially with regard to family members being distressed by the timing of the inquest and at hearing graphic evidence during the inquest [106]. A quantitative study noted that over a third of family members encountered problems dealing with the coroner's office and also being distressed by the media reporting of the inquest [78]. Notwithstanding this, a further qualitative study noted that the inquest can sometimes be a positive experience for family members, serving as a source of closure [59]. While this finding was reinforced in this study by a small number of family members, this benefit was outweighed in most cases by the intense anxiety felt before and during the inquest, as well the other distressing components of the inquest described by family members. Given that this research also aligns with the findings of previous studies conducted in different countries, it further emphasises the credibility, transferability and relevance of this study.

These findings at the individual level highlight a number of key systems level recommendations to improve the inquest process in Ireland. Recommendations include; 1) the appointment of a liaison officer from the coroner's office to link in with bereaved family members prior to the inquest to provide comprehensive information on the inquest process and also to proactively facilitate support for the family. Coroner liaison officers are commonplace throughout Northern Ireland, England and Wales. Coroner liaison officers help bereaved family members when a post-mortem has been ordered. They are the point of contact for family members and provide them with information, especially with regard to the preliminary cause of death and can assist them with financial matters; 2) consulting with family

members regarding the approximate time they deem suitable to hold the inquest, as the timing of the inquest (too soon/delayed etc.) can be potentially distressing for family members. Coroners in Northern Ireland are not obliged to hold an inquest. While the decision to hold an inquest is at the discretion of the coroner in Northern Ireland, the views of the family members can be taken into consideration prior to any decision being made; 3) a system should be put in place so that bereaved family members do not have to be present for other inquests while they wait for their own family member's inquest; 4) the reading of suicide notes or of graphic evidence relating to the death should be restricted, where possible, to reduce distress caused to people attending the inquest; 5) coroners facilitating family members to give a statement prior to the inquest, to relieve them of having to give evidence on the day of the inquest. Reducing or eliminating any traumatic aspects of the inquest process in Ireland is crucial, especially given that some countries, including Scotland do not hold inquests but rather investigate accidental, unexpected, sudden or unexplained deaths privately; 6) Many inquests in Ireland take place in a courtroom. Some participants in this study felt this setting was inappropriate given the connotations that a criminal offence had taken place. It is no longer necessary for inquest to be held in courtrooms and therefore, should take place in a neutral setting.

While a number of aspects of the inquest were distressing, it is important to highlight some of the positive aspects mentioned by participants. All of the participants that experienced a private inquest, by virtue of them being the last scheduled inquest of the day, found this appropriate and they stated it made the process easier. The compassionate approach of the coroner, the pathologist and

members of the police force present were also commended. Participants felt the pleasant demeanour of the coroner was important when they spoke of the factual events that took place around the time of the death. Others praised the coroner and the pathologist who were open to answer any questions or provide further clarification to family members, especially with regard to the toxicology report. Finally, some participants described the compassionate approach of the liaison police officer assigned to them. Participants found it particularly helpful when the liaison officer offered to read out their statement on their behalf. This offer was especially appreciated if the family member was fearful or felt unable to give evidence on the day due to emotional or grief reactions.

6.5.1 Strengths and limitations

This research has a number of strengths. This study had a representative non-selective sample of suicide-bereaved family members drawn from a pool of all suicides that occurred in Cork, Ireland during the study period. The response rate in this study was high, at 75%. Response rates could not be derived from a number of qualitative studies exploring the inquest process [106, 107] and suicide bereavement more generally [59, 61] as recruitment was via sources including, media releases, flyers, websites, newspaper articles, conferences, radio programmes and support organisations. Furthermore, this study achieved a relatively balanced gender distribution (11 women; 7 men), when compared to the existing research on this topic. It is difficult to recruit equal numbers of men and women bereaved by suicide, given that the majority of suicides occur in males, leaving females as the vast majority of people bereaved by suicide. The proportion

of males in the current study was 38%, compared to 6% [106] and 30% [107] in previous research. This increases the opportunity for the voices of males bereaved by the suicide of a spouse, parent or sibling are heard. The potentially hugely stressful nature of the inquest process, together with the increased suicide risk in males and in people exposed to a family member's suicide, specifically underlies the importance of capturing the experiences of males bereaved by suicide.

There are some limitations to this research. Additionally, given the lack of standardisation of coroners' procedures across the country, the experiences of participants in this study may differ to those in another coronial jurisdiction. This point further underlies the importance of standardising coronial procedures not only in Ireland, but in any country that operates within the coronial process.

6.6 Conclusion

The findings from this research illustrate that while some aspects of the inquest were deemed positive, many others were deemed inappropriate and distressing by suicide-bereaved family members. At a time of significant grief and stress, the inquest was a fearful prospect, with some having to wait up to a year after the death. Delayed timing of the inquest, the public nature of the inquest, and hearing graphic evidence were some of the distressing elements of the inquest process. A number of key recommendations arising from this research have been proposed, including having a pre-inquest briefing session with family members outlining the different elements of the inquest and also restricting graphic evidence heard during the inquest. These and the other recommendations proposed are important in

order to address distress experienced by suicide-bereaved family members during the inquest process.

Chapter 7: How do people experience a family member's high-risk self-harm? An interpretative phenomenological analysis

AILBHE SPILLANE

KAREN MATVIENKO-SIKAR

CELINE LARKIN

ELLA ARENSMAN

Under Review with Archives of Suicide Research (April 2018)

7.1 Abstract

Objective: Few studies have explored how individuals are affected following a family member's self-harm. None have focused on physical and psychosomatic responses following a family member's high-risk self-harm.

Methods: Qualitative interviews were conducted with nine participants whose family member presented to a large tertiary hospital in Ireland with high-risk self-harm.

Results: Common themes were (1) implications for health and wellbeing; (2) process of meaning-making; (3) feelings of responsibility and (4) challenges with support network.

Conclusion: Participants experienced adverse health impacts including nausea, vomiting, hypertension and depression. Caring for their own and their family members' wellbeing, together with challenges with accessing health services underscores the importance of family members being proactively contacted by healthcare professionals to alleviate these detrimental health effects.

Keywords: Self-harm, near-fatal, high-risk, qualitative methods, health, interpretative phenomenological analysis (IPA)

7.2 Introduction

Self-harm is an important public health issue, with associated personal, social and economic costs [9, 312, 313]. Ireland's age-standardised rates of hospital-presenting self-harm was 206 per 100,000 in 2016 [43]. Previous self-harm is the most consistent risk factor for suicide [24]. Cases of high-risk self-harm show similarities with suicides with respect to prevalence of current psychiatric disorder, previous history of self-harm, social adversity and stressful life events [49, 314]. High-risk self-harm can be described as an act that may have been lethal by chance or in the absence of intervention, and includes methods associated with a reasonably high chance of death, such as hanging [8] compared with methods associated with lower lethality, such as self-cutting. Risk factors for high-risk self-harm include diagnosis of a mood disorder, previous suicide attempts and psychiatric hospital admission in the previous year [8, 49].

The use of high-risk methods of self-harm has increased in Ireland by 72% between 2007 and 2016 [43, 315]. In terms of other countries in the EU, lethality of suicide attempts are higher in Hungary and Germany than in Ireland [316]. Similarly to Ireland, the use of high-risk methods of self-harm have increased, with rates of attempted hanging and suicide by hanging have steadily increased in South Korea and the United States [317].

Despite the increasing incidence of high-risk self-harm, its impact on family members' physical and psychosomatic health has been largely ignored in the literature. The scant literature on the topic has tended to concentrate on self-harm more generally, focussing on parents' experiences following their adolescent

offspring's self-harm [122, 123, 125-127, 130, 131, 151]. Family members' initial responses to self-harm include self-blame, shock, confusion, isolation, guilt, fear, shame and embarrassment [122, 123, 125-127, 130, 131]. Feelings of extreme tiredness/low energy, nausea, sleeplessness, weight loss and chest pains have been reported by individuals in the aftermath of a family member's self-harm (Ferrey et al., 2016; Raphael et al., 2006).

Exposure to a family member's self-harm or suicide increases the risk of people engaging in suicide or self-harm themselves [27, 134]. This familial transmission of suicidal behaviour is thought to be partly related to genetic factors, but also environmental factors such as adverse familial environments and learned behaviour [27, 176]. There is growing evidence that being bereaved by suicide is associated with an increased risk of several negative health outcomes [302, 303], but it is less clear whether exposure to a family member's high-risk self-harm confers similar negative outcomes.

In addition to the limited research into the impact of high-risk self-harm on family members, studies to date have primarily focused on initial psychological reactions whilst overlooking experiences relating to physical and psychosomatic health, with just two previous qualitative studies exploring this in any depth [122, 126]. These studies focussed only on parental experiences of a child or young person's self-harm and also did not specifically address high-risk self-harm. The current study is the first to explore the overall impact of a family member's high-risk self-harm, in terms of psychological, physical and psychosomatic consequences,

while addressing the limitations of previous studies by focussing on a range of kinships.

7.3 Method

7.3.1 Design

This is a qualitative study which utilised semi-structured/qualitative interviews with nine family members of individuals who presented to hospital following an act of high-risk self-harm in Cork City and County, Ireland, between July 2014 and August 2016. Interviews were guided by exploring four topic areas: (1) the self-harm act; (2) the impact of the self-harm act; (3) the broader familial and social impact of the self-harm act; and (4) support services.

7.3.2 Sample and recruitment

SSIS-ACE study

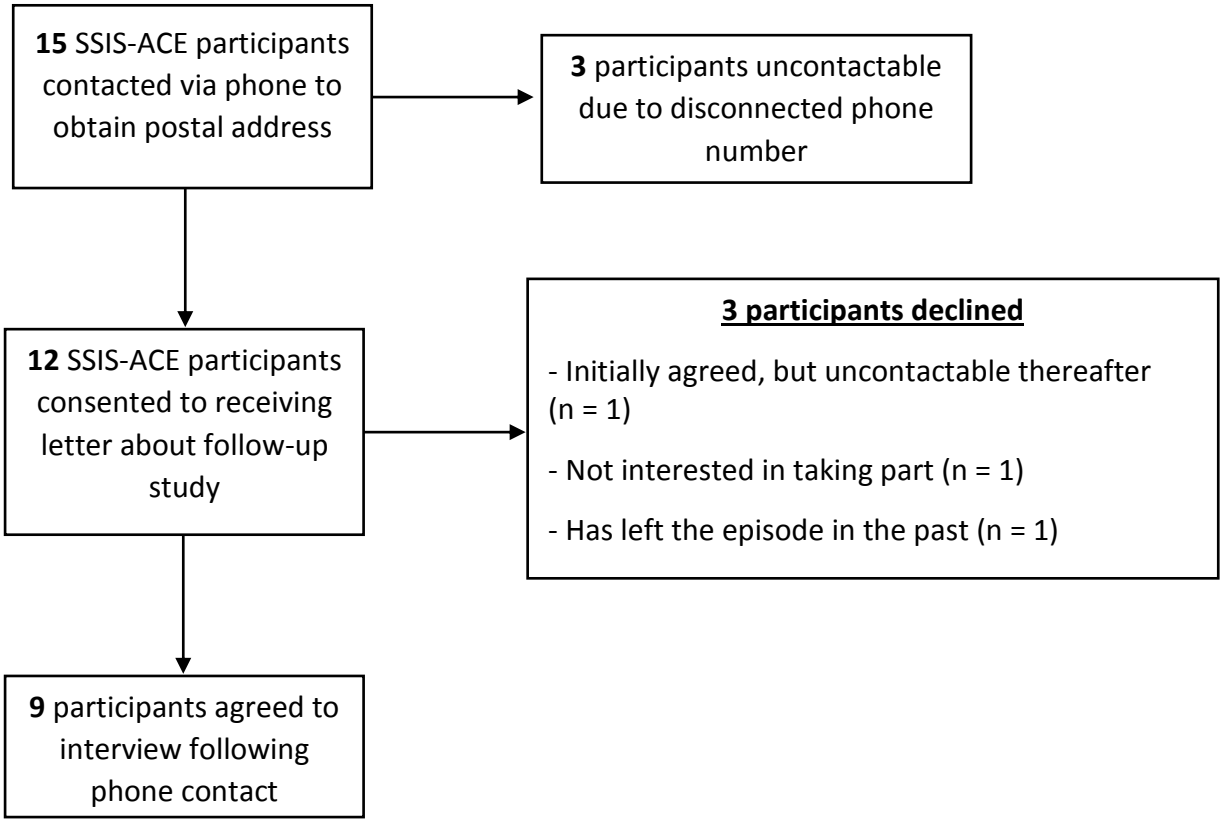
Participants for this qualitative study were drawn from the Suicide Support and Information System study on Psychosocial, Psychiatric and Work-Related Factors: A Case-Control Study - (SSIS-ACE) that was conducted in Cork, Ireland between 2014 and 2017. The SSIS-ACE study compared consecutive cases of high-risk self-harm with consecutive cases of suicide and general practice patient controls. Cases were recruited following a hospital presentation of high-risk self-harm and were asked if they consented for a family member to be approached for a collateral interview. Family members who completed a semi-structured collateral interview at that time and who consented for further follow-up were approached for the current qualitative study. High-risk self-harm was operationalised as using a high-risk self-

harm method (i.e. (1) attempted hanging, (2) jumping, (3) drowning). Participants were also eligible for inclusion if the family member's self-harm act did not meet the criteria for high-risk self-harm but there was a clinical impression of high suicide intent. Therefore, the selection of the sample was not solely determined by the strength of the suicidal intent.

Current qualitative study

All participants of the SSIS-ACE study who experienced a family member's high-risk self-harm and who consented for further follow-up (n = 15) were contacted via phone call to take part in the current study. As three participants were not contactable by phone, follow-up letters detailing the study were sent to 12 participants. In total, nine participants agreed to take part and completed the interview. Two participants actively declined to take part, with a third participant initially agreeing to the interview but who was uncontactable thereafter, resulting in a response rate of 75% (Figure 9).

Figure 9: Overview of recruitment process



7.3.3 Procedure

All participants (n = 9) were interviewed by AS, a PhD research student, using a topic guide (Appendix 6). AS has a Master's in Public Health, has worked in the area of mental health research for several years, and received specialised training in the management of distressed and at-risk participants. Participants were offered different options as to the preferred location of the interview. Three interviews took place in the participant's home, five in research offices in the National Suicide Research Foundation and one at a neutral location chosen by the participant.

Ethical approval was granted by the Clinical Research Ethics Committee of the Cork Teaching Hospitals. Participants were given a list of appropriate support services at the end of the interview. Each participant was contacted by telephone

three weeks after the interview to check in on how they were feeling after the process. This telephone call also served as a means of facilitating support for the participant based on their individual needs, as identified from the interview. If required, referrals for participants were facilitated by the principal investigator (EA).

7.3.4 Data analysis

Field notes were taken after each interview, which provided the interviewer an opportunity to process any initial thoughts regarding the interview. NVivo 11 was used to manage data from the interviews. Data from the interviews were analysed using interpretative phenomenological analysis (IPA). IPA is conducted on small samples, as the focus is to examine each case in an in-depth fashion as opposed to making more general statements about each case [318]. This in-depth analysis is termed an idiographic mode of inquiry [318]. IPA allows for the detailed examination of a person's lived experience of an event, the meaning they attach to an event and how they make sense of the experience [319]. This process of making sense of an event is a major theoretical component of IPA [207]. IPA was chosen as the most appropriate approach for this analysis because of the idiographic focus of IPA, which allows for the exploration of each case in detail [320]. Two authors coded the data (AS and KMS) and two additional authors (CL and EA) reviewed super and subordinate codes generated.

The first stage of IPA involves reading and re-reading the transcribed manuscripts, while the second step involves making initial notes about semantic content and the language used by the participant [207]. At this stage, it is also

important to focus on generating some conceptual commentary of the transcript. The third step involves developing emerging themes through open-coding of the data. The fourth step involves exploring the connections between these emerging themes. The fifth step involves repeating the above steps with the next transcript. The final step involves looking for patterns across each of the transcripts in order to develop a master set of superordinate themes [207].

7.4 Results

Interviews were conducted with nine participants (six females, three males) who had experienced a family member's high-risk self-harm. Mean age of interviewees was 44 years (range: 33-61 years). There were a variety of kinships, including spouses (n = 3), siblings (n = 3), parents (n = 2) and a close friend (n = 1; included because the self-harm patient listed them as their next-of-kin). Four interviewees were educated to post-secondary level, three to secondary school and the latter two were educated to a primary school level. Methods of self-harm included intentional drug overdoses, attempted drowning, attempted hanging and self-cutting. Mean length of the interviews was 94 minutes (range: 48-144 minutes). Mean time since the self-harm at the time of the follow-up interview was 21 months (range 14-27 months). Table 10 highlights participant characteristics, as well as the four main themes identified from the analysis process; (1) Implications for health and wellbeing; (2) process of meaning-making; (3) feelings of responsibility and (4) challenges with support network.

Table 10: Participant characteristics and theme mapping

			Superordinate themes present			
ID	**Gender**	**Age group**	**Implications for health and wellbeing**	**Process of meaning-making**	**Feelings of responsibility**	**Challenges with support network**
1	Female	40-59	Yes	Yes	Yes	Yes
2	Female	40-59	Yes	Yes	Yes	Yes
3	Male	40-59	No	Yes	No	Yes
4	Female	18-39	Yes	Yes	Yes	Yes
5	Female	18-39	Yes	No	No	Yes
6	Female	18-39	Yes	Yes	Yes	Yes
7	Male	60+	Yes	Yes	Yes	No
8	Male	18-39	Yes	Yes	Yes	Yes
9	Female	40-59	Yes	Yes	Yes	Yes
Prevalence of themes			**8**	**8**	**7**	**8**

7.4.1 Implications for health and wellbeing

Overall, this theme spans the psychological, physical and psychosomatic responses experienced by family members, both in the immediate aftermath and the longer-term following the self-harm experience. All participants referred to initial adverse health responses to the self-harm, which often extended to longer-term changes in health behaviours, such as diet and physical activity and poorer perceived general health. Health effects of the self-harm episode were negatively influenced by contextual factors, including familial conflict, financial hardship and experiencing previous traumatic events. This superordinate theme has two subordinate themes: 'physical and psychosomatic health responses' and 'psychological health responses'.

Physical and psychosomatic health responses

Four participants did not experience physical or psychosomatic health responses immediately after the self-harm. In these cases, participants began to experience such responses once their family member was safe and being treated in hospital. All but one of the participants referred to initial psychosomatic symptoms, which often extended to more long-term health outcomes. Three participants spoke of having more immediate symptoms of shock, including going pale, suddenly feeling very cold, a sudden draining of energy and experiencing their legs going to jelly:

> "I was freezing, just being in shock, like stupid…Like when he was in the ambulance and I knew he was safe, when I knew the ambulance men were here, I kind of shut down. Like even when they were admitting him, I was just standing there like a fool, I couldn't even talk" (P2, parent)

Upon hearing about their family member's self-harm, two participants felt their heart rate increase and began to feel a tightness in their chest, which resulted in breathlessness:

> "My heart rate was increased and I'm sure I was trying to regulate my breathing…when I came off the phone I was really crying." (P5, close friend)

Four participants experienced feelings of nausea and vomiting which often continued for weeks after the self-harm. Four participants felt their general health worsened after the self-harm. Participants discussed how this worsening of their health left them more susceptible to physical illnesses, especially respiratory diseases, including bronchitis, pneumonia, colds and influenza. Four participants felt there were no long-term adverse impacts to their physical health following the self-harm. The three participants who experienced a family member's multiple high-risk self-harm acts or threatened self-harm reported more pronounced physical and psychosomatic reactions than those who experienced one self-harm act or no further threats of self-harm. Two of the three participants experienced severely reduced self-esteem as a consequence of the self-harm. They noted a number of reactions, including persistent chest pains and a diagnosis of hypertension. For one participant, the onset of the hypertension was estimated to have occurred at a time which coincided with the onset of his partner's multiple self-harm acts. This participant feels the stress of his partner's self-harm acts was a large contributing factor to his development of hypertension:

> "I saw the consultant and he said 'yes [respondent] you do have high blood pressure'…so I said to him, 'how long do you think I've have high blood pressure?' And he goes, 'oh I would say a couple of years'. So it falls right in the period [of partner's first self-harm act], you know" (P8, partner)

Psychological responses

All participants referred to a range of psychological health experiences in the immediate aftermath of their family member's self-harm, including panic, stress, shock, anger, numbness, disbelief, fear and anxiety. Three participants found their family member after the self-harm and one participant was phoned by their family member directly beforehand, informing them of their intention to self-harm, which was then followed through. A further participant was informed of the self-harm soon after by their family member, which meant they were tasked with contacting the emergency services for assistance. This proximity to the event forced many to go on autopilot, as they 'didn't have time to feel or think anything, as they were just focussed on getting her to a hospital'. Often they were 'frantic' but were able to maintain 'controlled panic' until they knew their family member was safe in hospital and then went into 'shutdown mode'. They were often in a 'state of high alert' in the days and weeks after the self-harm as they were vigilant of their family member due to the possibility of a repeat act of self-harm, which may have resulted in suicide.

Due to the "autopilot" response in the immediate aftermath in some cases, participants described how it took them some time for the gravity of the situation to hit them. In some cases, participants 'just concentrated on what he needed',

which was often to the detriment of their own needs. Most participants described experiencing responses such as low self-esteem, stress, depression, and panic attacks in the weeks and months after the self-harm. These responses did not occur in isolation; they were often exacerbated by familial discontent and financial difficulties. Many participants spoke of experiencing more negative thoughts than positive thoughts since the self-harm, which often centred on feeling everything was bleak and constantly worrying about their family member.

No participant reported experiencing suicidal ideation after their family member's self-harm. This may be related in part to the fact that none of the family members were presently engaging in self-harm and none had concurrent mental health crises. Others spoke of becoming 'disinterested' in activities that they would have otherwise enjoyed in the months after the self-harm. The three participants included in this study who experienced a family member's multiple high-risk self-harm acts or threats of self-harm seemed to be distinct when compared to the majority who experienced this only once. Their psychological health reactions to the self-harm appeared more pronounced than the other participants. Two of the three participants spoke at length about experiencing a significant blow to their confidence, self-esteem and self-worth as a result of the self-harm, leading to feelings of shame, rejection and isolation:

> "I've just no desire for actual social interaction…like if the person that you think loves you, tries to kill herself, like so many times, it does have an effect on your opinion of yourself" (P8, partner)

7.4.2 Process of meaning-making

This superordinate theme relates to the experiential process of meaning-making that all but one of the participants engaged in after their family member's self-harm. Participants often began this quest for meaning by attempting to identify factors in their family member's lives that may have increased the risk or triggered the self-harm episode, including being the victim of bullying, not feeling part of society and poverty. This superordinate theme has two subordinate themes; 'increased understanding of mental illness' and 'gaining control of the uncontrollable'. The first subordinate theme explores how participants came to understand why their family member engaged in self-harm. This process of reflection often led to an increased understanding of mental illness and the potential reasons behind why someone might engage in self-harm. The second subordinate theme relates to how family members grappled with attempting to gain control over the self-harm and the situation at large. Many spoke about the unpredictable nature of both self-harm and their family member, which often led to feelings of fear regarding another potential self-harm episode.

Increased understanding of mental illness

Participants' reactions to the self-harm were inextricably linked to their past experiences, including suicide bereavement and own mental health difficulties which shaped their response to self-harm. One participant experienced the traumatic death of a close relative, where this experience allowed her 'not to get excited *[distressed]* about the small stuff anymore'. On the night in question she was very distressed but when "I saw him the next day…I wasn't saying 'what did

you do that for?', I wasn't emotional then" (P9, partner). Their own experiences of mental health difficulties helped participants to respond to their family member empathically as they understood that other people outside the family 'can only listen to so much and then they get fed up' (P6, mother).

Experiencing a family member's self-harm brought about an increased understanding of mental illness and suicide for five participants. One participant spoke about how the characterisation of suicide as selfish is a 'wilful kind of misunderstanding' because others 'really don't understand the pain that somebody would be in'. However, this response was sometimes not immediate, with one participant responding angrily asking "why would you make us all go through this after *[other family member's suicide]*"? Once they learned that the motivation for the self-harm was that they wanted 'my pain to stop', they could no longer 'be angry' with them. This lived experience of self-harm often brought about a change in perspectives of suicidal behaviour amongst some of the family members:

> "I would have had a totally different view of it beforehand to living with the experience with it after and I'd have had friends who went through it successfully *[died by suicide]*. I would have always said to myself "God that's such a selfish thing to do" but it's only when you have front hand experience of it that you think "God, it's anything but selfish". It's an act that they're not thinking right and they are doing it for the good of others. That was a complete eye opener and I hold that so much more now" (P3, husband)

Another participant added that self-harm and suicidal ideation should be met with compassion, where family members 'ask the person how can we put out the fire'.

Three participants found it difficult to comprehend the self-harm in the months after and asked "why did you do it, if it was troubling you, why didn't you come to me, you knew I was here". They felt most perplexed about how 'you would think things are so bad that you would want to do that'. This lack of comprehension persisted even when they were able to identify precipitants to the self-harm, including being diagnosed with a mental illness and being victimised.

Gaining control of the uncontrollable

Most participants emphasised the unpredictable nature of self-harm, whereby the notion that their family member would engage in self-harm or die by suicide was 'never on my horizon' before the attempt. Five participants spoke about their uncertainty regarding if their family member would engage in self-harm in the future. Many felt they couldn't completely dismiss the idea that their family member would self-harm again. Often, this scepticism was related back to the idea that many participants had not anticipated the self-harm in the first instance. This helped to fuel feelings of fear:

> "You can't leave me here *[at home]* with him…I didn't want him staying here in case I'd find him dead here one day" (P4, sister)

Five participants strived to gain some form of control over the situation. This feeling of wanting to be in control appeared to be driven by intense fear for the safety of their family member. This fear often resulted in participants trying to regain control of the situation through 'watching' and 'keeping an eye' on their family member, through phone calls 'to ask if he's ok'. Given the opportunity, this fear had the potential to induce constant rumination about future self-harm:

> "For a long time, every time he went out on a Saturday night…I'd be very worried. If he's not home by a certain time, it doesn't matter if I'm in a coma, I'll wake up and I'll be awake until he gets home…kind of like a teenager, 'oh it's 3:30am, he should be home soon'. And then I'll send a text 'all ok'?" (P9, partner)

This fear often dissipated once their family member's mental health improved after seeking professional help. Notwithstanding this, one participant noted how it would be 'unbearable' if your family member was 'hell-bent' on taking their own lives as 'every time you walk out your front door, you don't know what's waiting for you when you come home'. Three participants specifically mentioned coming to some form of acceptance that their family member might engage in self-harm in the future. Two of the three participants had experienced the multiple self-harm acts of their family member. This resignation allowed them to allay their fear of future self-harm acts. This acceptance appeared to be related to the self-preservation of their own mental health:

> "I knew he could have done it at any time. Then I came to believe that if he do*[es]* do it and he's not caught in time, there's nothing I can do about it. I had to step back then and get on with my life" (P7, father)

Another spoke about how she 'wouldn't be surprised if he did it *[self-harm]* again in the future' due to perceived vulnerabilities. Others spoke about how 'that's one thing I don't know', regarding if their family member would ever self-harm again.

7.4.3 Feelings of responsibility

This superordinate theme has three components; participants described how they felt a responsibility to care for their family member who engaged in self-harm, while also attempting to adequately care for their own needs. While participants felt a certain responsibility to care for their own health, the main purpose of this was to ensure they were healthy enough to provide care to other dependents or offspring in the family. Therefore, this theme has three subordinate themes; 'caring for self-harm patient', 'caring for self' and 'caring for self to care for others'.

Caring for self-harm patient

This subordinate theme only relates to the siblings in the study. Two of the three siblings in the study felt they had to step into the role of a parent after their sibling's self-harm due to the absence of parental figures. One participant spoke about how although her mother was physically available, she was not there in an emotional capacity to help at the time of the self-harm: 'the overdose didn't affect my mother at all, it only affected me…she left me deal with the whole lot of it' when 'it should have been my mother's responsibility to go to the hospital, not me'. She went on to say 'if anything is wrong, or he needs something done, it's to me he turns to, he rings me'. She described how this time was extremely stressful for her as 'I couldn't lead my own life' because 'my life is on hold to sort out their problems'.

The second sibling described a profound sense of isolation in terms of caring for her sibling since their parents died several years ago. The care of her younger sibling was initially shared with her brother but this partnership disintegrated when the

brother moved abroad, shortly after the self-harm episode. The impact of caring for her sibling alone has caused her a significant amount of worry and she felt that she experiences more negative thoughts now:

> "Well, my mam and dad passed away a few years ago…so me and my brother took him over as foster carers so then after about three years, *[brother]* moved to *[X]* so I was looking after him then…Every time I think of him I wonder what is he doing, what is he up to unless I know he's with *[partner]* or someone's above *[in the house]* with him" (P4, sister)

Care for self

Most participants noted adverse changes in their health and social behaviours in the weeks and months after the self-harm. This awareness led many to re-examine how their health behaviours deteriorated since the self-harm and to proactively address this. Eight participants referred to changes in their diet. Two participants lost the motivation to cook and prepare meals for themselves or lost their appetite because of nausea and vomiting. Losing their appetite induced a sense of anxiety in itself, as 'I couldn't eat because I was feeling sick' which 'was stressing me out':

> "There were often times that I wouldn't cook a dinner and I would say just go to the chipper today, I'm not in the form to cook…It took me about two or three months after *[family member's self-harm]* to get back to normal" (P1, sister)

Six participants engaged in comfort eating to cope with the self-harm, both in the initial aftermath and in the weeks and months after the self-harm:

> "I put on a good bit of weight but I lost it again now but there was a bit of comfort eating and only at night-time…I'd be eating rubbish *[junk food]*" (P2, sister)

One participant described how she is generally a non-smoker but felt she needed to smoke a cigarette at the time of the self-harm crisis to relieve her stress levels. One other participant felt her partner may have smoked more around the time of the self-harm as a coping mechanism but couldn't be sure as she was focussed on providing care to her family member. None of the participants interviewed engaged in risky alcohol or drug consumption as a means of coping with the self-harm.

Four participants noted that their sleeping patterns were affected in the weeks and months after the self-harm. Two participants explained how their sleep was never very good but the self-harm has worsened the periods of insomnia and sleeplessness as they worry their family member may engage in self-harm again:

> "It wasn't that I couldn't sleep, it's that I wouldn't sleep…you're waiting for that phone call all the time, you're waiting for the guards *[police]* to knock on the door and say that 'we've found him, he's dead'…you can't sleep, you can't eat while that's going on" (P7, father)

Two participants specifically spoke about how they experienced a significant reduction in their physical activity for a time after the self-harm, as they focussed all their energy on caring for their family member. One participant described how she became disinterested in undertaking household chores because of the burden associated with caring for her family member, which affected her physical health:

> "There might be some things that I don't want to do, like the housework, I'm not in the form for it…it's only since he went into the hospital…I was getting phone calls from the hospital, I was getting calls from his social worker…There was often times I could be sitting down having my dinner and the calls would come through…and then I would have to leave my dinner and talk to them on the phone so my health was going down for a while" (P1, sister)

One participant felt her levels of physical activity stayed the same throughout the self-harm crisis, with another participant feeling her levels of physical activity improved since the self-harm:

> "Hmm…not for the worst anyway, if anything for the better. I mean, I took up the gym and I started running" (P6, mother)

Caring for self to care for others

Four participants spoke about how they decided to improve aspects of their lives, including their diet, health and social behaviours. The main motivation for these participants to strive for this improvement was altruistic, to ensure they maintained their own health to enable them to care for other offspring and dependents. Two participants who experienced a family member's multiple self-harm acts spoke about the importance of keeping themselves well to enable them to provide care for other children or dependents in the family. They spoke about how easily those caring for a suicidal family member can 'end up getting sick...and going on tablets or 'end up dead' if they do not adequately care for themselves throughout the suicidal crisis, leaving them unable to care for other dependents. The basis of this

self-care often centred on monitoring and responding to adverse changes to health behaviours following their family member's self-harm. The unpredictable nature of their family member's behaviour may have served as the motivation to keep themselves well to provide stability for the children. One participant who experienced a shattering of their self-confidence as a result of the self-harm noted for a time that they ate 'more chocolate and more fizzy drinks than I would have had before and I think it's because like I'm not interested in doing anything so I'm just going to sit here and eat and drink this stuff'. However, his diagnosis of hypertension spurred him into action to improve his health for the sake of his children:

> "It's not just about me. Like okay if I had a mental breakdown fine, no problem, but that's grand if I have no dependents. But I do have dependents. Like so I just can't. So I have to look after my own mental health. I've got the high blood pressure. I need to do my best for the kids and yeah this needs to be part of it, like you know" (P8, partner)

He went onto explain how he would never consider suicide as he couldn't leave his children to be looked after by his partner, who he feels is too unstable:

> "Something could trigger [partner] again and then where would the kids be? ...we were so close to not having their mum, you know. And no I wouldn't. I wouldn't leave them at all. I have dependants, I have responsibilities. Um, my life isn't my life. It's my kids' life. So that's the primary focus of my life. You know, me indulging in anything for myself is not an option" (P8, partner)

The third participant worried about how 'years of compounded stress' could possibly have a very negative effect on my body over time'. She spoke about how it would be around 11:30am/12pm before her partner would 'get up on Sunday' following his weekly night out with friends. She explained that by the time he gets out of bed 'I've done all of the ironing, washing…it can get annoying from time to time it has to be said'. She joked 'I have a child, I have no social life [laughs]', as she felt she was the only one 'who's up the following morning regardless and children don't care that you had a good night'. It appeared that her own social life was suffering as she had to pick up the slack with regard to her partner's parental responsibilities. It was implied that he couldn't be fully relied upon due to his health status, which left her with the responsibility of being the primary carer of their offspring:

> "I put myself on the back burner I think a bit. Because of the heavy medication *[partner]* is on with *[physical health problem]*, he can be a bit forgetful. He gets stressed out then when he loses stuff so it's like I have two full time jobs, it's like I have two children *[laughs]*. So, I said that's it, I'm looking after myself. I'm a bit run down at the moment, I have a cold and an enormous cold sore" (P9, partner)

The fourth participant who is experiencing ongoing postnatal depression is attempting to put on a brave face where 'she's working on it' as she 'listens to positive TED talks' and reads 'positive self-help books' but admits that 'it's hard most days'. Her main motivation for improving her own mental health is for her children. She also spoke about how her son's self-harm identified perceived

weaknesses in her parenting abilities, where she hoped to learn from these mistakes to benefit her other children:

> "It made me question more about my parenting than anything else…it really made me sit down and go through the way I brought him up so the other kids would benefit from that. I would have been very critical so if [son] had done something, I'd say "you could do that better", I would have never praised him for the effort…I was very critical obviously, so I'm trying not to be with the other kids" (P6, mother)

7.4.4 Challenges with support network

This superordinate theme relates to participants' perspectives on the aftercare provided both to their family member and to them following the self-harm. Many felt that the formal aspects of care provided by the hospital were inadequate. Most participants spoke about how neither they nor their family member were followed up on by the hospital in the days and weeks after the self-harm. This lack of follow-up from the formal support services underlined the importance of ongoing informal support from family and friends. Therefore, this superordinate theme has two subthemes; 'formal aftercare following self-harm' and 'informal aftercare following self-harm'.

Formal aftercare following self-harm

Due to the high-risk nature of the family member's self-harm, each family member required treatment in hospital. All but one of the participants spoke negatively about their experiences in the hospital setting. Many referred to the detached and

'clinical' approach taken by the health professionals in the hospital. Family members wanted the hospital staff to 'look at the patient, not as another suicide attempt' and 'see he was part of a family unit, he wasn't living out on his own, his mam and dad were there…they need to be involved'. Being 'cut out' of this interaction left some participants feeling rejected and responsible for the self-harm. Patients 'felt demoralised' as they were left on trolleys and family members 'felt disappointed' that there was no 'comfort and reassurance' by the hospital staff. While participants acknowledged that the '[Irish] health system is in chaos', they did not feel this was a valid excuse to 'alienate people'. Conversely, one participant felt that the hospital was 'great' and that the staff were 'doing more than the best they can'.

Five participants specifically spoke about how the formal aftercare for themselves and their family member was lacking following their discharge from hospital. They described how no one 'followed up' with them after their family member was discharged from hospital and one participant felt that someone from the hospital should 'call in' and check on them as 'it's very easy to lie down *[over]* the phone' regarding their progress and mental health. There was also 'very little help' available for those who engaged in self-harm 'even if she was willing to pay, and she was…it just wasn't there'. Conversely, one participants described how 'there's no support there at all…there was for [person who self-harmed] but not for us at all'. Another felt that the in-patient psychiatric services in the area were 'disgraceful in the way it's understaffed'.

It appears that the provision of mental health services differed by geographical area, with some areas having superior standards of care than others, while some psychiatric hospitals 'were like something out of a 1940s horror movie' compared to others around the country which were like 'holiday home[s] in comparison'. Particularly, participants found it distressing that there was no one to explain what self-harm was or explain to them what was happening with their family member as 'doctors would never talk to us, never call us out'. Being cut out of the interaction between the hospital staff and their family member left some feeling like they were 'to blame' because they were perceived as 'bad parents'.

While eight of the nine participants felt that aspects of the hospital service were grossly lacking, seven expressed positive experiences with other formal supports, including the prison service, the police force, social workers, GPs, support services and counsellors. The positive support provided by them was even more crucial considering the lack of support received at the hospital. One participant highlighted how police arranged for their family member to be admitted to a psychiatric ward 'two hours later' as 'the guards can get them in you see'. Without the presence of the police, this would have been difficult for the participant to achieve on their own. The personable approach taken by a social worker assigned to a participant's family member was also very much appreciated:

> "She told us everything that he could or couldn't do…as he *[self-harm patient]* wouldn't tell you nothing *[sic]*" (P4, sister)

Two participants who had experienced a family member's suicide previously spoke about how they understood how someone would engage in self-harm and go on to take their own lives due to the inadequacy of the hospital and health services. Both felt their family member slipped through the cracks of the support services and were not prioritised as high-risk when they presented themselves to the health services. This tainted or 'coloured' their views of the health services:

> "I was thinking about *[family member's]* experience…he went to the A&E two Monday nights running and didn't stick around to be treated…and I'm going Jesus well I wouldn't blame him…and as I say, that maybe coloured my own view, you know" (P5, close friend)

Informal aftercare following self-harm

Most participants felt at least partially unsupported by family and friends after the self-harm. Participants spoke about how the self-harm 'affected me for ages afterwards' but described how 'there was no one to talk to' as often other family members didn't understand the self-harm. In some instances, they chose to confide in close friends as some family members had 'old-fashioned' views of self-harm and felt people experiencing mental health difficulties needed to 'chin up'. Sometimes they chose to conceal the self-harm from other family members and friends due to feelings of shame and stigma:

> "His mother doesn't know, my parents don't know that it happened…I wouldn't want to upset my own parents and because *[partner's]* father was ill and his mother, she could do without that…It's different saying it to somebody I don't know but I'd be worried they would make a judgement on him" (P9, partner)

Some felt they 'can't go into a lot of detail' about the self-harm to friends because 'you have to see them every day…or on a regular basis'. This sense of isolation was further compounded by the lack of support from other family members. One participant described how his own family are 'a close family unit' and that he wanted to keep his partner's self-harm 'within the family'. However, some members of his partner's family broke this confidentiality and told others outside of the family about the self-harm which left his partner 'so upset' and 'so let down'. Participants acknowledged that it felt 'good to talk about it because I can't talk about it to anyone really' as other family members 'will break down in a ball of tears if I mention the first thing about it to her'. This pro-active facilitation of support, through contacting those who have experienced a family member's self-harm is crucial, especially when informal supports are absent or inadequate:

> "I'm not supported enough…I'm doing all the supporting…I had two operations…after the operation I came home but not a phone call from my mother or from *[brother]* to say how are you…I had nobody to support me, it was only when Celine *[researcher]* got in contact with me…" (P1, sister)

Notwithstanding this, participants often felt that aspects of the informal support they received from family and friends was helpful and described that they were

'lucky' to have this support. One participant spoke particularly about the importance of finding 'people that understand'. Often family and friends were proactive in their attempts to help, which was often valued particularly in the immediate aftermath of the self-harm:

> "I rang my sister around 5:30am and she came in and she was great…she has experience talking to guards *[police]* and talking to hospitals so I think she shielded some phone calls and stuff from me" (P3, partner)

7.5 Discussion

This study is the first to explore the psychological, physical and psychosomatic impacts of a family member's high-risk self-harm. Four superordinate themes were identified from the data; (1) implications for health and wellbeing; (2) process of meaning-making; (3) feelings of responsibility and (4) challenges with support network. Participants were those who experienced a family member's high-risk self-harm. The first theme relates to how participants' health and wellbeing was affected following their family member's self-harm. They often experienced panic, shock, disbelief, fear, anxiety, nausea and vomiting. Sometimes these initial reactions extended to experiencing persistent chest pains, hypertension, depression and loss of self-esteem following the self-harm episode. The second theme relates to how experiencing a family member's high-risk self-harm forced the majority of participants to attempt to understand why they self-harmed and what factors may have contributed to it.

The third theme describes how participants felt a strong responsibility to care not only for their family member's health and wellbeing but also their own.

This motivation to care for their own health was altruistic as they wanted to keep themselves in good health to ensure they could provide care for other dependents in the family. Finally, the fourth theme relates to the formal and informal care, or lack thereof, provided to their family member and to themselves after the self-harm episode. Specifically, the lack of aftercare for participants and their family members brought about a sense of isolation, where participants' health behaviours were adversely impacted in the short term as they were forced to deal with the self-harm episode on their own. Therefore, we found that participants were severely affected, in terms of their psychological, social and physical functioning following a family member's self-harm episode.

Previous research has largely focussed on the psychological responses of parents to their child's self-harm [122, 125, 131]. However, this study addresses a gap in the literature by specifically focusing on both the psychological and physical health impact of high-risk self-harm on a variety of kinships, including parents, siblings and partners. Participants' initial reactions to the self-harm included panic, stress, shock, disbelief, fear and anxiety which have also been reported in previous qualitative studies [122, 125, 131]. Participants often described feeling fearful that their family member would engage in self-harm again if another crisis developed, which was found in previous studies [121, 122]. Finally, the physical and psychosomatic sequelae identified by this study, including nausea, vomiting, chest pains, insomnia and loss of appetite, mirrored those found in other studies [122, 126].

While the current findings related to psychological health impacts align with previous work, the findings of the current study related to participants' health more broadly raise several questions regarding experiencing the suicidal behaviour of a family member. Firstly, the results indicate that experiencing a single incident of self-harm may be, at least, qualitatively different to experiencing repeated self-harm of a family member. The scant research that has been conducted on experiences following a family member's self-harm has not explicitly explored if experiences diverge for those whose family member has self-harmed once or multiple times. Instead, the research on this topic has sometimes included those who experienced multiple self-harm acts but the severity of these acts varied [122] or those who experienced either the self-harm or suicidal ideation of a family member [131]. Those experiencing a family member's self-harm, regardless of the number of self-harm acts, are at significantly increased risk of engaging in self-harm themselves and dying by suicide [27, 29, 36, 133, 138, 176]. Further research is required to examine prospectively whether experiencing multiple self-harm acts is more detrimental to family members than a single act, especially in terms of self-esteem and wellbeing. The presence of low self-esteem has been shown to be a predictor of suicidal ideation, after controlling for depression and hopelessness in outpatient psychiatric patients [321]. Therefore, this research further suggests the importance of considering impacts to self-esteem when examining the negative impact of a family member's high-risk self-harm.

Participants in the present study spoke about how they were excluded from the interaction between the hospital and their family member. They spoke about how this brought about feelings of responsibility, self-blame and left them isolated

and unsure how best to support their family member. This exacerbated psychological and physical responses such as panic, stress, anxiety, nausea and vomiting. A potential solution to reducing their risk of suicidal behaviour and other negative health consequences is to involve family members in the treatment and care of people who self-harm. A recent review concluded that there is growing evidence of the importance of including families in the management of adolescent self-harm [322]. The inclusion of family members in interventions of intermediate duration reduced suicidal behaviour, self-harm and suicidal ideation in those who have engaged in self-harm [167, 322]. The inclusion of family members may also promote better engagement with psychiatric services for the person engaging in self-harm [322]. The current study indicates that the benefits of involving family members in the care of people who self-harm may go some way in preventing adverse physical, psychosomatic and psychological responses in family members.

The plethora of adverse mental, physical and psychosomatic health reactions following a family member's self-harm such as anxiety, depression, panic attacks, nausea, vomiting, hypertension and a worsening of general health are strikingly similar to those who have experienced suicide bereavement [302, 303]. However, PTSD symptoms, including nightmares, flashbacks, visions and memory loss were more frequently reported by the suicide-bereaved compared to people experiencing a family member's high-risk self-harm. Other differences in grief responses between the two groups included the suicide-bereaved expressing feelings of guilt, self-blame, anger and stigmatisation. A small number of researchers have hypothesised that the impact of self-harm on the family is similar to experiencing suicide bereavement, although the intensity of emotions appears to

be attenuated in those experiencing self-harm [131, 323]. This is not surprising given that people whose family member has self-harmed have not yet experienced a loss through death, but rather may be experiencing anticipatory grief. Anticipatory grief can be defined as an expectation of a significant impending loss or death [324]. While fully accepting that a death has occurred for suicide-bereaved family members may take some time, the outcome is indisputable. However, for people experiencing a family member's self-harm, they may have been experiencing anticipatory grief, owing to the uncertainty of their family member surviving the self-harm. Indeed, anticipatory grief may be present indefinitely for this group as they consider whether their family member will engage in further self-harm acts or take their own life in the future. While previous self-harm is the strongest risk factor for suicide, only 1 in 25 people who present to hospital following self-harm will die by suicide in the following five years [24]. Therefore, the majority of people engaging in self-harm will not go on to take their own life. This leaves people experiencing a family member's self-harm in a unique position of constant ambiguity about whether they will engage in self-harm in the future. It is this uncertainty that differentiates the trajectory of the suicide-bereaved to people experiencing a family member's high-risk self-harm.

Previous qualitative research has noted that people experiencing a family member's self-harm sometimes go through a grieving process, which is often present during the initial reactions to the self-harm [126]. Sometimes people are grieving for the psychological torment their family member is enduring [130, 325]. The grieving experienced following a family member's self-harm may be somewhat similar to, and evoke comparable health effects, to suicide bereavement. Therefore,

it may be the case that these two groups have more similarities than differences, especially with respect to health outcomes experienced.

7.5.1 Strengths and limitations

There were some limitations to this qualitative study. The study was limited to a convenience sample of participants whose family member presented to a hospital in Cork City or County following high-risk self-harm. Even though a limited convenience sample was used, the methodological approaches, including data collection and analysis, provided insight into experiencing a family member's high-risk self-harm. All participants were Caucasian and therefore the experiences of those from ethnic minorities are lacking in this study. The time elapsed since the self-harm varied between the participants, with a mean time of 21 months (range: 14-27 months). Therefore, the results of the study may differ if the length of time since the self-harm was similar across all participants. There is also potential self-selection bias as those who chose not to be interviewed a second time (25%) may be experiencing quite negative or positive outcomes that have been missed as they did not engage with the research process. Participants for this study were recruited from a larger case-control study, where those who engaged in high-risk self-harm were interviewed to understand the risk factors associated with this behaviour. At the end of this interview, participants were asked to nominate a family member who could be contacted to take part in a collateral interview. Uptake for this initial interview was relatively low, at around 36% for those with fully completed interviews who were able and willing to nominate a family member. Therefore, the pool of participants to sample from for this study was limited. There are a number

of possible explanations for the low uptake of family informant interviews; those who engaged in high-risk self-harm may not have wanted their family member to know about the self-harm and therefore would not have nominated a family member; a family member may not have been nominated due to familial conflict; and a family member may have been nominated but chose not to take part, possibly due to experiencing adverse health experiences or experiencing shame or stigma following the self-harm. Notwithstanding this, the present study had several strengths; it is the first qualitative study to address the physical, psychosomatic and psychological health impact of those experiencing a family member's high-risk self-harm. Previous studies have been limited by including only one kinship; the current study included a variety of kinships, which provides a range of familial perspectives following a relative's self-harm. Finally, this study included both high-risk self-harm that was determined by the use of a combination of the self-harm method and a clinical impression of suicidal intent. Participants with highly lethal self-harm and low suicidal intent, as well as those with a low lethality self-harm method and high suicidal intent were included. This is consistent with the published literature that indicates that suicidal intent scales are not a good predictor of suicide risk [326]. Therefore, this comprehensive eligibility criteria ensures the credibility and transferability of people experiencing a family member's high-risk self-harm, either in terms of the lethality of the method or intent. Therefore, future research should mirror this approach, especially given that none of the intent scales have any sufficient evidence to support their use [326].

7.6 Conclusions

Participants who experienced multiple high-risk self-harm acts of their family member described more marked adverse health reactions and psychological consequences, including persistent chest pains, hypertension and reduced self-esteem compared to those experiencing a single self-harm act. Healthcare professionals can help to ameliorate this negative experience by proactively engaging with family members who have experienced high-risk self-harm and helping to facilitate formal support services, including counselling and psychotherapy. Longitudinal studies are required to establish specific risk factors associated with adverse health outcomes after experiencing multiple self-harm acts of a family member. The importance of involving family members in the care and treatment of a person who self-harms is crucial. This involvement may also potentially offset the negative health sequelae experienced by family members outlined in this study.

Chapter 8. Discussion

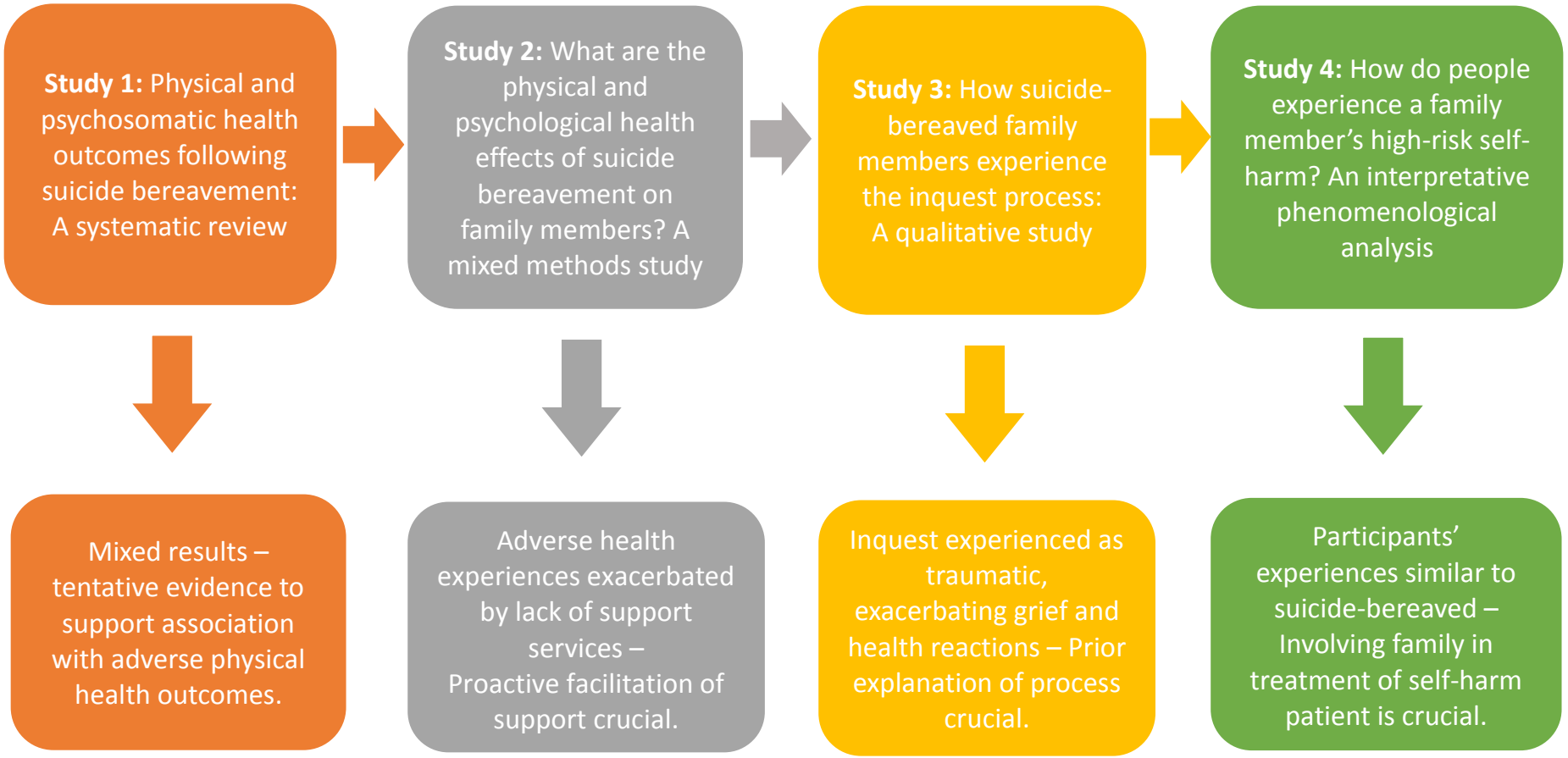
8.1 Chapter overview

This chapter will provide a summary of the main findings of this research, along with an in-depth interpretation of the research outcomes, and discussion of the overall strengths and weaknesses of the research conducted as part of this thesis. The theoretical, health policy and clinical implications of this thesis will then be presented. Suggestions for future research will be discussed, followed by concluding remarks. The central aim of this doctoral thesis was to examine the individual impact of fatal and non-fatal suicidal behaviour on family members in Ireland, using a mixed methods approach. This is the first study to not only explore and examine the psychological health impacts but also addressing the physical and psychosomatic health impacts of experiencing a family member's suicide or high-risk self-harm in Ireland. It is also the first to explore suicide-bereaved family members' experiences of the inquest in Ireland.

8.2 Summary of main findings

A summary of the main thesis findings are given in Figure 10 and are outlined separately below.

Figure 10: Overview of thesis findings



Overall, the findings of this thesis are consistent with a number of theoretical models and frameworks, including the social ecological model [192], the growing flower model of reintegration after suicide [193], complicated grief [217, 244, 309, 310], the dual process model of coping with bereavement [308] and theories related to PTSD. As inferred from the social ecological model, the immediate family and close friends of the deceased are impacted first and foremost by suicide. Family members in the current study described intense acute psychological, physical and psychosomatic symptoms in the initial aftermath of the death. For the purposes of this research, psychosomatic symptoms were defined as subjective physical complaints (e.g. headache, stomach-ache, backache, dizziness) and psychological complaints (e.g. feeling low, irritability, nervousness, difficulty in getting to sleep) without any known organic disease [53]. These adverse health reactions included hypertension, diabetes, COPD as noted in the systematic review (Chapter 3). Additionally, other negative health consequences noted in the mixed methods study (Chapter 5) include depression, anxiety and PTSD symptoms. Other health reactions included emotional nausea, vomiting, numbness and a sense of disbelief that their family member was dead (Chapter 5). Some family members described trying to carry on as normal in the days after the death, primarily owing to a sense of unreality about the suicide. This initial avoidance in the aftermath of the death sometimes extended to family member's avoiding people, places or things that triggered painful memories of the deceased. Grief-related avoidance behaviour in people with complicated grief is driven by the intention of avoiding painful memories of the deceased. However, this avoidance can lead to further functional impairment in the bereaved [309]. Meaning-making is the last stage for

reintegration after suicide bereavement, as described in the Growing Flower Model [193]. Meaning-making consists of personal growth and identity changes, where sometimes the bereaved question the role or identity they had prior to the death. The results of this study also indicate that people experiencing a family member's high-risk self-harm also go through a process of meaning-making, particularly with regard to the events prior to and the motives underlying the self-harm act. They may also experience anticipatory grief [324], given the unpredictability of whether their family member will engage in self-harm or die by suicide in the future. Results from Chapter 7 indicated that people experiencing a family member's high-risk self-harm engaged in a quest for meaning whereby they attempted to identify potential triggers for the self-harm, including poverty, unemployment or being bullied.

Suicide-bereaved family members described disturbed sleeping patterns, including nightmares and visions of the deceased. Sometimes, these images related to finding their family member's body. These flashbacks are notable features of PTSD, where the individual feels they are reliving the trauma [327]. Following on from this, suicide-bereaved participants displayed a number of aspects of complicated grief, including an intense yearning for the deceased [244]. This preoccupation interfered with appetite, diet, physical activity and generally reconstructing life after the death. Therefore, according to the dual process model of coping with bereavement, some of the family members failed to oscillate between loss and restoration-orientated coping [308].

The results of the qualitative study on the impact of the inquest on suicide-bereaved family members indicated that aspects of the coronial process were

sometimes viewed as distressing, intimidating and traumatising (Chapter 6). Aspects of the inquest that were particularly stressful included the formal aspects of process, including hearing graphic evidence, having to give evidence in a witness box and having the inquest open to the public. According to the dual process model of coping with bereavement, bereaved family members initially experience loss-orientated coping, which often involves ruminating about the circumstances of the death and yearning for the deceased. Loss-orientated coping involves the processing of the loss [308]. Some family member's described the timing of the inquest to be inappropriate – this may be related back to the stage of grief they are in, where they may be still coming to terms with the death. Aspects of the inquest, such as hearing graphic evidence about the deceased, including autopsy reports, may trigger or maintain existing PTSD symptoms [327] in vulnerable family members who are reliving the death through intrusive images.

While the health symptoms described by participants experiencing a family member's self-harm were attenuated in comparison to the suicide-bereaved, they still had marked health reactions. Their initial symptoms mirrored the reactions experienced by the suicide-bereaved, including disbelief, shock, guilt and sadness. While the majority of participants felt their family member had recovered and was no longer experiencing suicidal ideation or engaging in self-harm, none were confident in assuming their relative would never self-harm again. As such, family members were still concerned about the prospect of a future self-harm act. The theory of anticipated grief [324] may best describe this sense of foreboding, where one anticipates either further fatal or non-fatal suicidal behaviour. The findings in Chapter 7 corroborate aspects of the theory of anticipatory grief [324] given that

family members were constantly on high alert waiting for the next self-harm episode. Additionally, participants felt there was always a possibility their family member may engage in self-harm in the future, especially if confronted with stressful life circumstances.

8.2.1 Systematic review of health outcomes and suicide bereavement

The first study was a systematic review which examined the physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by non-suicide deaths (Chapter 3); this was the first review to examine this topic. The review found tentative evidence to support the association between suicide bereavement and some adverse physical health outcomes, including diabetes and hypertension [303]. However, there were some inconsistencies, with seventeen studies finding no association between the studied exposure and outcome. No significant association was found for an increased risk of adverse psychosomatic health outcomes in those bereaved by suicide. However, a large proportion of included studies had methodological limitations, including selection bias, small sample size and failing to control for potential confounding factors.

Findings were mixed with regard to healthcare utilisation among suicide-bereaved family members [39, 97]. Therefore, it is unclear whether their need for healthcare is different from people bereaved by non-suicide deaths, or whether grief and stigma affects help-seeking [58, 109, 244]. Healthcare utilisation as a measure of health status is not without bias. Research in Ireland indicates that when standardised by age, sex and location, GP and prescription services tend to be 'pro-poor', where they are used more frequently by people with lower incomes for

a given health status. Additionally, the use of GP services is largely driven by such enabling factors as having a medical card. Having a medical card results in additional visits to the GP and also higher number of days spent in hospital. Furthermore, by removing financial barriers to health services in Ireland, the research indicate that this is likely to increase demand for both inpatient and outpatient services. In summary, it is important to be cognisant of the nature and content of healthcare utilisation as opposed to just relying on the frequency of visits [328, 329].

The findings of this study demonstrate that family members reported that their physical health was negatively impacted by experiencing suicide bereavement. However, this change in physical health cannot be solely attributed to the suicide, especially considering the inherent difficulties in establishing a temporal relationship between the exposure to suicide and the outcome. Regardless of the temporality of the outcomes, this impact should be considered by clinicians in addition to assessing psychological wellbeing. Further longitudinal controlled studies are required as many of the studies included in the review had methodological limitations, such as neglecting pre-bereavement health, heterogeneous control groups and small sample size.

8.2.2 Mixed methods protocol and full outcomes study

The second study comprised a mixed methods protocol (Chapter 4) and mixed methods outcomes study (Chapter 5) to explore and examine the physical and psychological health effects of suicide bereavement on family members. The health impact of suicide bereavement, identified in the systematic review (Chapter 3), was

explored in greater depth as part of the qualitative component of the mixed methods study. The findings from the quantitative component of the study highlighted that a significant minority of suicide-bereaved family members experienced elevated levels of depression, anxiety and stress, which supported findings from the United States [85, 293], Canada [82], the United Kingdom [294] and Sweden [213]. The qualitative component of the study corroborated these findings while providing the unique exploration of the physical and psychosomatic health experiences and support service needs of family members experiencing suicide bereavement. In contrast to the systematic review findings (Chapter 3), the qualitative aspect of this study provided indications that those bereaved by suicide experience adverse psychosomatic health outcomes, in addition to physical health problems. It is therefore recommended that clinicians have a greater awareness of not just adverse psychological health effects but also physical and psychosomatic health sequelae associated with suicide bereavement, while also proactively facilitating support for people experiencing suicide.

8.2.3 How do suicide-bereaved family members experience the inquest process?

The third study explored family members' experiences of the inquest process (Chapter 6), which so far has been addressed in a limited way in Ireland and has also rarely been explored in the international context, with two notable exceptions [106, 107]. Evidence from this qualitative study indicates that family members bereaved by suicide in Ireland find aspects of the inquest process distressing. These included the public nature of the inquest, timing/setting of the inquest, hearing graphic evidence about their own or someone else's family member and having to

give evidence. These findings have been corroborated by the limited research conducted previously [106, 107]. A particularly relevant finding from this study was that many family members spoke of an intense dread of the inquest in the months beforehand, due to a lack of knowledge about what the inquest entailed and its associated procedures and processes. This novel research underlines the importance of adequately of providing information about the inquest to suicide-bereaved family members in the months beforehand to relieve this apprehension and anxiety.

8.2.4 How do people experience a family member's high-risk self-harm?

The impact of experiencing a family member's self-harm, especially in terms of the potential impact on health has rarely been explicitly explored. In Chapter 7, it was reported that people who experienced a family member's high-risk self-harm encountered a range of negative health implications, including nausea, vomiting, and increased heart rate. This study also found that participants who experienced multiple high-risk self-harm acts of their family member described more marked adverse health reactions and psychological consequences, including hypertension and reduced self-esteem compared to those experiencing a single self-harm act. A particularly interesting finding was the striking similarities between the negative health outcomes experienced by individuals following a family member's high-risk self-harm and experiencing a family member's suicide (Chapter 3 and 5), including nausea, vomiting, breathlessness and hypertension. Some researchers have also noted that the health impact of a family member's self-harm may be similar to the impact of suicide [131, 323], but further longitudinal research needs to be

conducted to provide further confirmation of this hypothesis. Therefore, involving family members in the care of a self-harm patient may be important to reduce the likelihood of further self-harm acts, while also helping towards ameliorating some of the negative health sequelae experienced by family members.

8.3 Theoretical implications

This is the first study in Ireland to examine the health impact of experiencing a family member's suicide or high-risk, using a mixed methods approach. The systematic review (Chapter 3) highlighted the increased risk for certain adverse health outcomes among suicide-bereaved family members. Several health outcomes identified by the systematic review were strikingly similar to the impacts described in the mixed methods study of family member's experiencing suicide (Chapter 5) and the qualitative study of people experiencing a family member's high-risk self-harm (Chapter 7). Both groups were similar with respect to mental and physical health impacts, including anxiety, depression, panic attacks, nausea, vomiting, hypertension and a worsening of general health. Several researchers have hypothesised that the impact of experiencing a family member's self-harm is similar to experiencing suicide bereavement, however, the intensity of such reactions is moderated in people experiencing a family member's self-harm [127, 131, 323]. This is also corroborated by the thesis research findings. Therefore, this doctoral thesis provides evidence that the effects of a family member's suicide or high-risk self-harm are broadly similar, especially with respect to initial reactions to the suicide/self-harm and the subsequent psychological and physical health implications. There were also similarities with respect to the lack of formal and

informal supports for both groups. This particularly underlies the importance of proactively facilitating support for people experiencing a family member's fatal or non-fatal suicidal behaviour, as overwhelming grief reactions are one of the main barriers to help-seeking for people bereaved by suicide [56, 282]. The potential mechanisms underlying this similarity need to be addressed in future research.

8.4 Health policy implications

Ireland's economic recession and subsequent austerity (2008-2012) measures have had a significant negative impact on suicide rates in men and hospital-treated self-harm in both sexes [16]. The Irish government has responded to this public health concern through the development and their committed to the *Connecting for Life* strategy, which is the national response to reduce suicide in Ireland [330]. This research provides an evidence base for the *Connecting for Life* actions, in particular, Action 4.3: "Improve the uniformity, effectiveness and timeliness of support services to families and communities bereaved by suicide". Through semi-structured interviews with families experiencing suicide bereavement and high-risk self-harm, this research provides insight into the availability and accessibility, or lack thereof, of support services in Ireland.

Connecting for Life has also emphasised the importance of targeted approaches for those vulnerable to suicidal behaviour [330]. It notes that priority groups include people bereaved by suicide, those experiencing health problems and those from minority populations. The strategy also sets out to reduce suicidal behaviour and improve mental health in these priority groups, while enhancing accessibility and care pathways for people vulnerable to suicidal behaviour [330].

This thesis has operated in accordance with these aims in a number of ways; each person bereaved by suicide or who experienced a family member's high-risk self-harm who was contacted for this research was proactively offered facilitation of support. In total, 44% of the suicide-bereaved group took up the offer of facilitation of support at the follow-up interview, which was on average 27.3 months after the death. Of those experiencing a family member's high-risk self-harm, 22% took up the offer of support at the follow-up interview. These figures highlight that these groups, especially the suicide-bereaved group, still require support even in excess of two years post-death/post-self-harm. Additionally, due to the familial transmission of suicidal behaviour [27, 133, 176], both groups are at increased risk of engaging in suicidal behaviour themselves, which further underlines the importance of proactively engaging with this group and providing access to supports where necessary. This thesis complements the national policy by providing a model and impetus for intervening with family members of those who self-harm or die by suicide.

8.5 Implications for clinical practice and suicide prevention

The findings of this doctoral thesis have several important clinical implications for GP's, psychologists, psychiatrists, counsellors and front-line hospital staff. Broadly speaking, people experiencing a family member's fatal or non-fatal suicidal behaviour have a range of psychological, physical and psychosomatic health needs that are intertwined with complex reactions to the suicidal behaviour, including feelings of anger, guilt, blame, stigma and isolation. The co-occurrence of strong emotional reactions and health impacts led to the exacerbation of mental and

physical health problems, including suicidal ideation, self-harm, PTSD, diabetes and hypertension. However, dealing with mental health issues remains a considerable challenge for GPs, given challenges in detection and deciding on the best course of treatment and whether this is readily available for the patient [331].

Furthermore, it is important for clinicians to be aware that people experiencing a family member's self-harm have similar, if somewhat less severe, health impacts to people bereaved by suicide. Both groups have expressed disparities with respect to formal supports, particularly. Therefore, it is recommended that clinicians proactively facilitate support for affected individuals to alleviate some of the associated negative health and social impacts of familial fatal and non-fatal suicidal behaviour. One possible form this proactive facilitation of support may take is contact from an individual's GP with a Suicide Crisis Assessment Nurse (SCAN). The SCAN service aims to provide GPs with support in relation to patients who present to them with suicidal ideation or self-harm. The GP has access to a single mobile telephone number that links them with the SCAN service which facilitates prompt referral of the patient, if required. Following this, the SCAN arranges to meet the patient in the GP surgery in the following days to undertake a full bio-psychosocial assessment. A care plan is agreed and aims to provide the patient with support to enable long term stability. In the same vein, if coroner liaison officers operated in Ireland, they could serve as the initial point of contact for both issues related to the inquest process, but also by acting as a gatekeeper to facilitate access to formal supports if required.

A number of family members experiencing both fatal and non-fatal suicidal behaviour reported that their sleeping patterns were disturbed not just in the immediate aftermath but also in the months after the suicide/self-harm act. Recent research indicates that individuals who experience sleep problems are at an increased risk for suicidal thoughts and behaviours [332-335]. They also spoke of experiencing other sleep disturbances, including visions and nightmares. Nightmares specifically are directly related to suicidal thought and behaviours, and this association is independent of psychopathology and comorbid insomnia [336-338]. This, together with the heightened risk of suicide in both groups [36, 138], underlies the importance of clinicians recognising and responding to sleep disturbances and insomnia in family member's experiencing fatal or non-fatal suicidal behaviour. Following on from this, a small number of participants who experienced a family member's suicide or high-risk self-harm endorsed suicidal ideation or behaviour themselves, with one person engaging in a high-risk self-harm act themselves. The participants who had suicidal thoughts were bereaved by suicide. The prevailing motivation for their suicidal behaviour was to escape the emotional pain they were experiencing and an intense motivation to reunite with their deceased loved one. These findings reinforce the importance of proactively facilitating support for people experiencing a family member's suicide or high-risk self-harm.

8.6 Future research

This thesis has systematically identified some of the negative health outcomes and reactions following a family member's suicide or high-risk self-harm, including

depression, anxiety, diabetes, hypertension, COPD and CVD (Chapter 3, 4, 5, 6, 7). However, much of the research used self-report measures of physical health, which are subject to recall bias. Therefore, it is recommended that future research uses objective measures of physical health, such as GP or hospital records, or ambulatory measurement, for physical and psychosomatic health outcomes. The use of objective measures of physical health should not be restricted to quantitative studies but would also make a significant contribution to mixed methods research. The majority of the studies included in the review did not control for pre-bereavement functioning, which may be a potential confounding factor. Future research should take this into account. Appropriately controlled longitudinal studies specifically examining physical and psychosomatic health outcomes following suicide bereavement need to be conducted. The systematic review did not find any study with a significant association between psychosomatic health outcomes and suicide bereavement. Research from the interviews with people experiencing suicide bereavement (Chapter 5 and 6) and a high-risk self-harm (Chapter 7), indicated that psychosomatic health problems are an issue for both groups. Consequently, it is possible that the current measures used to identify psychosomatic health problems in quantitative research are not sufficiently valid. Therefore, it would be important to consider the value of qualitative research in enhancing quantitative measures to assess psychosomatic health problems.

The qualitative research conducted for this thesis indicates that negative health outcomes can be worsened and exacerbated during the months before and during the time of the inquest (Chapter 6). A larger qualitative study could explore how family members bereaved by non-suicide deaths experienced the inquest

process. This is important as research suggests that people bereaved by sudden unnatural death experience elevated shame and stigma scores compared to people bereaved by sudden natural death [91].

Furthermore, the scientific literature indicates that stress has a direct impact on health, through autonomic and neuroendocrine responses, but also indirectly through health behaviours [339]. While the current research indicates that experiencing a family member's suicide (Chapter 3 & 5) or high-risk self-harm (Chapter 7) produces similar health reactions, the exact mechanisms underlying this remain unclear. Furthermore, the qualitative research on experiencing a family member's high-risk self-harm (Chapter 7) provides preliminary evidence that experiencing multiple high-risk self-harm incidents produces worse health responses than experiencing one high-risk self-harm act. However, there is no research specifically examining this; therefore, quantitative studies are required to examine health outcomes encountered by family members experiencing a single act of high-risk self-harm versus multiple acts of high-risk self-harm.

8.7 Strengths and limitations

This section provides a summary of the strengths and limitations of this doctoral thesis overall. The strengths and limitations of each of the individual studies have been acknowledged and addressed in the relevant chapters.

This doctoral thesis has a number of strengths. The concepts for the evaluation of quality in qualitative research, including reflexivity, meta-positions of the researcher, pre-conceptions of the researcher, transferability and the use of theoretical frameworks [340, 341] have been central throughout the conduct of this

thesis. The importance of reflexivity when generating knowledge through qualitative means has garnered increased attention in recent years [342]. Essentially, reflexivity involves focusing on the role of the self in knowledge creation and the impact that personal experiences, opinions and biases have on the research [343]. Acknowledging these biases is crucial when collecting and analysing qualitative data.

Reflexivity

My background is in Public Health and Health Promotion. My interest specifically in the field of suicide and self-harm arose when I took up a research position at the beginning of 2014 with the National Suicide Research Foundation. During this position, I worked on a number of projects but became particularly interested in the impact of suicide bereavement. This interest was sparked by a clinical PhD project that was ongoing at this time, which involved interviewing family members bereaved by suicide. While understanding the grief processes associated with suicide bereavement was important in itself, I was more concerned with gaining a better understand of how a person's psychological, physical and social health are affected.

During the first year of the PhD, I began to question how family members were impacted following a loved one's high-risk self-harm. This was something that had been rarely researched and I therefore felt it was important to include this group in the research also. While, I do not have a personal experience of a family member engaging in suicide or self-harm, I feel this put the participant in a privileged position where they were imparting their knowledge of their experiences to me.

This was a particular advantage given the often described asymmetry between the researcher and the informant [344]. From a meta-position, not experiencing suicide bereavement or a family member's high-risk self-harm did not affect the openness or depth of knowledge obtained during the interviews. In fact, being viewed as an 'outsider' led many participants to disclose deeply personal details about themselves or their loved ones, which they had previously kept hidden from others for fear of negative reactions. This demonstrated to me that the participants felt safe in and trusted the interview process. I also feel that my non-experience of a family member's suicidal behaviour meant that participants may have felt safer disclosing reactions such as relief, which may be purposely hidden due to feelings of shame and stigma.

Preconceptions of the researcher

However, not experiencing the suicide or self-harm of a family member inevitably resulted in pre-conceptions of the researcher about this experience, particularly in relation to the processes and health experiences following a family member's suicide or high-risk self-harm. This is not inherently negative in qualitative research, as knowledge is partial and situated and it is understood that the effect of the researcher should be assessed [345]. The trajectory of grief (or anticipatory grief) for people experiencing a family member's suicidal behaviour was largely unknown to me, except for information distilled from previous research on the topic. It was therefore important to adopt meta-positions, where the topic guides for the interviews were initially developed but were rarely consulted as the interviews proceeded more conversationally. Additionally, I was acutely aware of how I, as a

researcher, could be influencing the research process. To minimise this, I engaged in extensive interview training, which particularly focused on themes that are commonly present (mental illness, sexual abuse, substance abuse etc.) in cases of suicide and high-risk self-harm.

Transferability

While no study, irrespective of the method chosen, can be universally transferrable, it is important to consider the extent of transferability, which is based on one's research question and sampling strategy [345]. The sampling of suicide-bereaved family members was done via accessing coroners records, people experiencing self-harm were identified by approaching consecutive high-risk self-harm presentations to emergency departments. While this research was conducted in Cork city and county, this comprehensive sampling strategy allows the transferability of the research findings to the rest of the Republic of Ireland, and also potentially to countries which operate under the coronial system.

Theoretical perspectives

A number of theoretical models, including the Social-Ecological Model, the Growing Flower Model of Reintegration after Suicide, the Dual Process Model of Coping with Bereavement, Complicated Grief and Anticipatory Grief were used to inform the study framework. These theories aided in informing the overarching research question, while also providing a basis of understanding for the study results. Anticipatory grief has been particularly helpful in furthering our understanding of the impact of experiencing a family member's high-risk self-harm.

The use of a non-selective sample of family members experiencing fatal and non-fatal suicidal behaviour is a key strength of this piece of research. This research conducted as part of this thesis has contributed significantly to addressing key research gaps in the literature. As a whole, this research contributes to an increased understanding of the health and social impact of experiencing a family member's suicide or high-risk self-harm. It also provides information on the type of support services required by people experiencing a family member's suicidal behaviour and suicide-bereaved family members' experiences of the inquest process.

The mixed methods approach allowed bridging the strengths and limitations of both quantitative and qualitative research. This research adopted the use of a variety of methods and methodologies based on their suitability to the research question. Additionally, a number of researchers in suicidology have called for the use of mixed methods approaches to further our understanding of the field [51, 283]. A recent review of the published studies on suicide bereavement and postvention concluded that the majority were quantitative in nature, with 23% and 7% being qualitative or mixed-methods research paradigms, respectively [346]. It has been argued that we require more research to understand suicidal behaviour, especially research that takes into account some of the contextual factors of the phenomena, including age, gender, employment status, culture and area-level characteristics. It is only through a mixed methods approach that we could fully examine the psychological, physical and psychosomatic impact of suicide bereavement, while also exploring the experiential health impact of fatal and non-fatal suicidal behaviour from an individual perspective. A particularly interesting finding from the qualitative interviews with people experiencing a family member's

high-risk self-harm found that four participants specifically spoke about adopting a healthier diet and exercise regime after the self-harm act. A quantitative study may have therefore found that experiencing high-risk self-harm may help to improve these lifestyle factors, but without providing an explanation of the potential mechanisms underlying this change. It was only through in-depth interviews that it became clear that these particular family members did not change their lifestyle for the sake of their own health per se, but rather to keep themselves emotionally and physically well in order to provide care for offspring or other dependents in the family. This reaction may have stemmed from the unpredictable nature of their family member's behaviour which served as the motivation to keep themselves well to provide stability for the children involved. Therefore, this type of complex understanding of phenomena can only be furthered by qualitative research. This also underlines the benefits of both quantitative and qualitative research in order to provide a clearer and more context-specific picture of the impact of suicidal behaviour on family members in Ireland.

The sampling frame for Studies 5, 6 and 7 comprised of consecutive cases of suicide and high-risk self-harm and their respective family members recruited for the SSIS-ACE study. The consecutive nature of the recruitment process reduced the likelihood of sampling bias. A subset of family members who experienced the suicide or high-risk self-harm of a relative were approached to take part in the qualitative studies that formed the basis for three of the empirical studies included in this thesis. As these family members were recruited at the same time, the time since bereavement or self-harm is broadly similar for all participants. This minimises any differences with respect to experiences that may be due to time since loss.

Experiences would likely differ if the time since the event varied widely between participants, as research suggests that recent time since loss increases the level of traumatic distress experienced by people grieving a loved one's death [347].

The qualitative study exploring the physical, psychological and psychosomatic health experiences following a family member's high-risk self-harm is the first study of its kind. The research presented in Chapter 7 bridges this gap in the literature as strict criteria were used to identify people who engaged in high-risk self-harm and their respective family members. Therefore, the participants that took part in the study were relatively homogenous with regard to the high-risk status of their family members' self-harm. It would have been unhelpful to conduct interviews with people where some would have experienced high-risk self-harm of a family member, while others would have experienced low-risk self-harm, in the absence of taking into account suicidal intent.

Previous research in this area has primarily focused on the psychological health impact of exposure to suicide or self-harm while neglecting physical and psychosomatic health experiences. In addition, most studies have focussed on one kinship, mostly parental experiences following offspring self-harm or suicide, which precludes the experiences of offspring, partners and siblings. This study addresses these gaps in the knowledge base by including a range of kinships, such as parents, offspring, partners and siblings exposed to a family member's high-risk self-harm or suicide and to provide insights into the associated physical, psychological and psychosomatic health sequelae. This research provides greater insights and perspectives from a range of participants experiencing a family member's suicide

and high-risk self-harm. Additionally, the response rate of 75% for the empirical studies conducted as part of this doctoral thesis exploring the impact of suicide bereavement and a family member's high-risk self-harm was high.

The author has had the opportunity to present this research at numerous national and international scientific conferences (Appendix 8). The author was also invited to write a blog post for the BMC Public Health summarising the main findings of the systematic review (Appendix 8). To date, three of the included studies have been published in peer-reviewed academic journals (Appendix 10), while one has been submitted and the other is currently under review. The research generated from this thesis received coverage in national and regional newspapers and radio stations.

This thesis also has some limitations. Firstly, when conducting research, it is important to consider bias. Sources of bias in quantitative research include a flawed study design, selection bias, interviewer bias and confounders. Bias in qualitative research is not viewed as inherently negative, but something that is unavoidable and should be reflexively discussed, along with the researcher's viewpoint, perspectives and biases [348]. Notwithstanding this, it is important to note that the quality of qualitative research is heavily dependent on the skills and biases of the researcher [349]. To minimise distress to participants interviewed and elements of researcher bias, including asking leading questions, I took part in extensive training provided by the National Suicide Research Foundation. I also took part in a week-long external training course in qualitative interview training, which was run by the University of Oxford.

This training comprised many elements, including effectively identifying and dealing with those at risk of suicidality. The training also provided information on risk factors for suicidal behaviour that may be likely to be brought up by the participants during the interviews. These common themes included common mental health problems/diagnoses associated with suicidal behaviour, alcohol/substance abuse and physical/emotional/sexual abuse. Additionally, to examine any potential bias, I have previously discussed my personal account of the research process in order to be transparent about my worldview and preconceptions. This transparency is crucial to underline the rigour and trustworthiness of qualitative research [350]. I also considered this personal account in relation to the thesis findings to ensure that the findings were data driven. This research is also limited by the absence of a comparison group and detailed information on participants' mental health and physical health prior to the suicide or to the start of self-harm by a family member.

This thesis was also limited by the geographic area. The SSIS-ACE study which was used to sample people who experienced a family member's suicide or high-risk self-harm was limited to Cork City and County. Therefore, people experiencing a family member's fatal or non-fatal suicidal behaviour who reside in other counties in Ireland were not included in the study. Although Cork represents a mix of urban and rural locations, it is possible that if other more rural counties of Ireland were included in the study, there may have been different findings, especially with respect to stigma and shame. Additionally, diversity with respect to ethnic minorities was limited in this research. Of the twenty-seven interviews with people experiencing a family member's fatal (n = 18) or non-fatal (n = 9) suicidal

behaviour, just one person was from an ethnic minority group, the Traveller Community. However, this may still be representative given that the proportion of ethnic minorities is relatively low compared to other countries. Members of the Traveller Community in Ireland represent a particularly at-risk ethnic minority group. Suicide accounts for 11% of all deaths within the Traveller Community, with the suicide rate 6 times higher than the national average [351].

Finally, it is important to consider the context within which this research was undertaken. Ireland was the last country in Europe to decriminalise suicide in 1993, which may mean that older family members bereaved by suicide in Ireland may endure more shame and stigma associated with the death, thereby exacerbating psychological and physical health impacts, than those in countries whose decriminalisation occurred decades earlier. It is also possible that family members who felt most stigmatised following the suicide may have declined to participate in the research. Furthermore, a recent population census reveals that over three-quarters of the population of Ireland self-identify as Roman Catholics. The Catholic Church viewed suicide as a crime previously and people who were suspected of dying by suicide were denied proper funeral rites and burial in church cemeteries until 1983. This deeply entrenched view that suicide is a crime may still be present in some Irish population subgroups, thereby leaving them unwilling or unable to take part in suicide bereavement research.

8.8 Conclusions

Experiencing a family member's suicide or high-risk self-harm has psychological, physical and psychosomatic health impacts, but consequences can also extend to

social, work-related, community and societal consequences. Additionally, family members bereaved by suicide must also contend with the inquest process, which can be distressing and challenging. The current work utilised a mixed methods approach to examine and explore the impact of experiencing a family member's fatal or non-fatal suicidal behaviour. This research also explored family member's subsequent needs for support, from multiple viewpoints. The findings from this thesis have contributed to the theory around experiencing suicidal behaviour, as they provide evidence that experiencing a family member's fatal or non-fatal suicidal behaviour has similar health and social impacts, as well as support needs. As a result of this, both groups should receive proactive facilitation of support by clinicians. Given the use of multiple methods, the innovative focus on physical and psychosomatic health impacts and the novel theoretical insights generated, this doctoral thesis represents a significant contribution to the field of self-harm and suicide research, as well as suicide prevention.

What is already known on this topic

- People bereaved by suicide are at increased risk of developing mental health problems, including depression, anxiety and PTSD.
- People bereaved by suicide are at increased risk of engaging in both fatal and non-fatal suicidal behaviour.
- People bereaved by suicide experience greater levels of perceived stigma, shame, responsibility and guilt after the death.

What this thesis adds

- The review was the first to systematically synthesise the available literature on the physical impact of suicide bereavement on family members and concluded that family members bereaved by suicide are at increased risk for a number of negative physical health outcomes, including CVD and diabetes.
- Negative psychological, physical and psychosomatic health outcomes continue to impact people in excess of two years after a family member's suicide or high-risk self-harm, indicating a continued need for specialised healthcare supports.
- People experiencing a family member's suicide or high-risk self-harm have broadly similar short and long-term psychological, psychosomatic and physical reactions, including depression, panic attacks, nausea, vomiting and hypertension.
- Findings indicate a lack of formal and informal supports for people experiencing a family member's suicide or high-risk self-harm, which needs to be addressed via timely access to specialist support.
- The inquest can be challenging for family members bereaved by suicide. However, distress can be minimised by adequately informing family members of the purpose of and procedures carried out as part of the inquest process.

References

1. Butler AM, Malone K. Attempted suicide v. non-suicidal self-injury: behaviour, syndrome or diagnosis? Br. J. Psychiatry 2013;202(5):324-5.
2. Silverman M, De Leo D. Why there is a need for an international nomenclature and classification system for suicide. Crisis 2016;37(2):83-87.
3. World Health Organisation. Practice manual for establishing and maintaining surveillance systems for suicide attempts and self-harm. Geneva: World Health Organisation, 2016.
4. De Leo D, Burgis S, Bertolote JM, Kerkhof AJ, Bille-Brahe U. Definitions of suicidal behavior: lessons learned from the WHO/EURO multicentre Study. Crisis 2006;27(1):4-15.
5. Skegg K. Self-harm. The Lancet 2005;366(9495):1471-83.
6. Arensman E, Keeley H. Defining Intent: With preparations underway for DSM-5, is there a case for a new diagnostic category of non-suicidal self-injury? Psychiatry Professional 2012;1(1).
7. Plener PL, Schumacher TS, Munz LM, Groschwitz RC. The longitudinal course of non-suicidal self-injury and deliberate self-harm: a systematic review of the literature. Borderline personality disorder and emotion dysregulation 2015;2:2.
8. Marzano L, Fazel S, Rivlin A, Hawton K. Psychiatric disorders in women prisoners who have engaged in near-lethal self-harm: case-control study. Br. J. Psychiatry 2010;197(3):219-26.
9. World Health Organisation. Preventing Suicide: A Global Imperative. Luxembourg, 2014:89.
10. World Health Organisation. World Health Statistics 2017: Monitoring health for sustainable development goals. Geneva: World Health Organisation, 2017.
11. Andriessen K, Rahman B, Draper B, Dudley M, Mitchell PB. Prevalence of exposure to suicide: A meta-analysis of population-based studies. J. Psychiatr. Res. 2017;88:113-20.
12. Hawton K, van Heeringen K. Suicide. The Lancet 2009;373(9672):1372-81.
13. Hjelmeland H, Dieserud G, Dyregrov K, Knizek BL, Leenaars AA. Psychological autopsy studies as diagnostic tools: Are they methodologically flawed? Death Stud. 2012;36(7):605-26.
14. World Health Organisation. Global Health Observatory (GHO) data: suicide rates (per 100,000). Secondary Global Health Observatory (GHO) data: suicide rates (per 100,000) 2018. http://www.who.int/gho/mental_health/suicide_rates/en/.
15. Griffin E, Arensman E, Dillon C, Corcoran P, Williamson E, Perry IJ. National Self-Harm Registry Ireland Annual Report 2015. Cork: National Suicide Research Foundation, 2016.
16. Corcoran P, Griffin E, Arensman E, Fitzgerald AP, Perry IJ. Impact of the economic recession and subsequent austerity on suicide and self-harm in Ireland: An interrupted time series analysis. Int. J. Epidemiol. 2015.
17. Hjorthoj CR, Madsen T, Agerbo E, Nordentoft M. Risk of suicide according to level of psychiatric treatment: a nationwide nested case-control study. Soc. Psychiatry Psychiatr. Epidemiol. 2014;49(9):1357-65.

18. Runeson B, Haglund A, Lichtenstein P, Tidemalm D. Suicide risk after nonfatal self-harm: a national cohort study, 2000-2008. J. Clin. Psychiatry 2016;77(2):240-6.
19. Qin P, Agerbo E, Mortensen PB. Suicide risk in relation to socioeconomic, demographic, psychiatric, and familial factors: A national register–based study of all suicides in Denmark, 1981–1997. Am. J. Psychiatry 2003;160(4):765-72.
20. Hawton K, Casanas ICC, Haw C, Saunders K. Risk factors for suicide in individuals with depression: a systematic review. Journal of Affective Disorders 2013;147(1-3):17-28.
21. Cavanagh JTO, Carson AJ, Sharpe M, Lawrie SM. Psychological autopsy studies of suicide: a systematic review. Psychol. Med. 2003;33(3):395-405.
22. Hawton K, Casañas i Comabella C, Haw C, Saunders K. Risk factors for suicide in individuals with depression: A systematic review. J. Affect. Disord. 2013;147(1–3):17-28.
23. Hawton K, Bergen H, Cooper J, et al. Suicide following self-harm: findings from the Multicentre Study of self-harm in England, 2000-2012. J. Affect. Disord. 2015;175:147-51.
24. Carroll R, Metcalfe C, Gunnell D. Hospital presenting self-harm and risk of fatal and non-fatal repetition: systematic review and meta-analysis. PLoS One 2014;9(2):e89944.
25. Haukka J, Suominen K, Partonen T, Lönnqvist J. Determinants and outcomes of serious attempted suicide: A nationwide study in Finland, 1996–2003. Am. J. Epidemiol. 2008;167(10):1155-63.
26. Larkin C, Griffin E, Corcoran P, McAuliffe C, Perry IJ, Arensman E. Alcohol involvement in suicide and self-harm. Crisis 2017;38(6):413-22.
27. Brent DA, Melhem N. Familial transmission of suicidal behavior. Psychiatr. Clin. North Am. 2008;31(2):157-77.
28. Pitman A, Osborn D, Rantell K, King MB. Bereavement by suicide as a risk factor for suicide attempt: a cross-sectional national UK-wide study of 3432 young bereaved adults. BMJ Open 2016;6(1).
29. Mittendorfer-Rutz E, Rasmussen F, Wasserman D. Familial clustering of suicidal behaviour and psychopathology in young suicide attempters. Soc. Psychiatry Psychiatr. Epidemiol. 2008;43(1):28-36.
30. Dyregrov K, Dyregrov A. Siblings after suicide—"The forgotten bereaved". Suicide Life Threat. Behav. 2005;35(6):714-24.
31. Rostila M, Saarela J, Kawachi I. Suicide following the death of a sibling: a nationwide follow-up study from Sweden. BMJ Open 2013;3(4).
32. Rostila M, Saarela J, Kawachi I. "The psychological skeleton in the closet": mortality after a sibling's suicide. Soc. Psychiatry Psychiatr. Epidemiol. 2014;49(6):919-27.
33. Geulayov G, Gunnell D, Holmen T, Metcalfe C. The association of parental fatal and non-fatal suicidal behaviour with offspring suicidal behaviour and depression: a systematic review and meta-analysis. Psychol. Med. 2012;42(08):1567-80.
34. Lopez-Castroman J, Guillaume S, Olie E, Jaussent I, Baca-Garcia E, Courtet P. The additive effect on suicidality of family history of suicidal behavior and early traumatic experiences. Archives of Suicide Research 2015;19(2):275-83.

35. Niederkrotenthaler T, Floderus B, Alexanderson K, Rasmussen F, Mittendorfer-Rutz E. Exposure to parental mortality and markers of morbidity, and the risks of attempted and completed suicide in offspring: an analysis of sensitive life periods. J. Epidemiol. Community Health 2012;66(3):233-9.
36. Geulayov G, Gunnell D, Holmen TL, Metcalfe C. The association of parental fatal and non-fatal suicidal behaviour with offspring suicidal behaviour and depression: a systematic review and meta-analysis. Psychol. Med. 2012;42(8):1567-80.
37. Pitman A. Addressing suicide risk in partners and relatives bereaved by suicide. Br. J. Psychiatry 2018;212(4):197-98.
38. Agerbo E. Midlife suicide risk, partner's psychiatric illness, spouse and child bereavement by suicide or other modes of death: a gender specific study. J. Epidemiol. Community Health 2005;59(5):407-12.
39. Erlangsen A, Runeson B, Bolton JM, et al. Association between spousal suicide and mental, physical, and social health outcomes: A longitudinal and nationwide register-based study. JAMA Psychiatry 2017;74(5):456-64.
40. Stenbacka M, Jokinen J. Violent and non-violent methods of attempted and completed suicide in Swedish young men: the role of early risk factors. BMC Psychiatry 2015;15:196.
41. Gairin I, House A, Owens D. Attendance at the accident and emergency department in the year before suicide: retrospective study. Br. J. Psychiatry 2003;183:28-33.
42. Foster T, Gillespie K, McClelland R, Patterson C. Risk factors for suicide independent of DSM-III-R Axis I disorder. Case-control psychological autopsy study in Northern Ireland. Br. J. Psychiatry 1999;175:175-9.
43. Griffin E, Dillon C, Arensman E, Corcoran P, Williamson E, Perry I. National Self-Harm Registry Ireland Annual Report 2016. Cork: National Suicide Research Foundation, 2017.
44. Larkin C, Di Blasi Z, Arensman E. Risk factors for repetition of self-harm: a systematic review of prospective hospital-based studies. PLoS One 2014;9(1):e84282.
45. Tsiachristas A, McDaid D, Casey D, et al. General hospital costs in England of medical and psychiatric care for patients who self-harm: a retrospective analysis. The Lancet Psychiatry 2017;4(10):759-67.
46. Martiniuk AL, Chen HY, Glozier N, et al. High alcohol use a strong and significant risk factor for repetitive self-harm in female and male youth: a prospective cohort study. Am. J. Drug Alcohol Abuse 2015:1-9.
47. Mok PL, Pedersen CB, Springate D, et al. Parental psychiatric disease and risks of attempted suicide and violent criminal offending in offspring: A population-based cohort study. JAMA Psychiatry 2016;73(10):1015-22.
48. Gvion Y, Levi-Belz Y. Serious suicide attempts: Systematic review of psychological risk factors. Frontiers in psychiatry 2018;9(56).
49. Beautrais A. Suicides and serious suicide attempts: two populations or one? Psychol. Med. 2001;31(05):837-45.
50. Beautrais A. Further suicidal behavior among medically serious suicide attempters. Suicide Life Threat. Behav. 2004;34(1):1-11.
51. Hjelmeland H, Knizek BL. Why we need qualitative research in suicidology. Suicide Life Threat. Behav. 2010;40(1):74-80.
52. Hjelmeland H, Knizek BL. Methodology in suicidological research-contribution to the debate. Suicidology Online 2011;2.

53. Natvig GK, Albrektsen G, Anderssen N, Qvarnstrom U. School-related stress and psychosomatic symptoms among school adolescents. J. Sch. Health 1999;69(9):362-8.
54. Lindqvist P, Johansson L, Karlsson U. In the aftermath of teenage suicide: a qualitative study of the psychosocial consequences for the surviving family members. BMC Psychiatry 2008;8:26.
55. Gall TL, Henneberry J, Eyre M. Two perspectives on the needs of individuals bereaved by suicide. Death Stud. 2013;38(7):430-37.
56. Pettersen R, Omerov P, Steineck G, et al. Suicide-bereaved siblings' perception of health services. Death Stud. 2015;39(6):323-31 9p.
57. Schotanus-Dijkstra M, Havinga P, van Ballegooijen W, Delfosse L, Mokkenstorm J, Boon B. What do the bereaved by suicide communicate in online support groups? A content analysis. Crisis 2014;35(1):27-35.
58. Shields C, Kavanagh M, Russo K. A qualitative systematic review of the bereavement process following suicide. Omega: Journal of Death & Dying 2017;74(4):426-54.
59. McKinnon JM, Chonody J. Exploring the formal supports used by people bereaved through suicide: A qualitative study. Social Work in Mental Health 2014;12(3):231-48.
60. Bell J, Stanley N, Mallon S, Manthorpe J. Life will never be the same again: Examining grief in survivors bereaved by young suicide Illness, Crisis & Loss 2012;20(1):49-68.
61. Peters K, Cunningham C, Murphy G, Jackson D. 'People look down on you when you tell them how he died': Qualitative insights into stigma as experienced by suicide survivors. Int. J. Ment. Health Nurs. 2016.
62. Pitman A, Nesse H, Morant N, et al. Attitudes to suicide following the suicide of a friend or relative: a qualitative study of the views of 429 young bereaved adults in the UK. BMC Psychiatry 2017;17(1):400.
63. Fhailí MN, Flynn N, Dowling S. Experiences of suicide bereavement: a qualitative study exploring the role of the GP. Br. J. Gen. Pract. 2016;66(643):e92-e98.
64. Pitman AL, Stevenson F, Osborn DPJ, King MB. The stigma associated with bereavement by suicide and other sudden deaths: A qualitative interview study. Soc. Sci. Med. 2018;198:121-29.
65. Currier JM, Holland JM, Neimeyer RA. Sense-making, grief, and the experience of violent loss: toward a mediational model. Death Stud. 2006;30(5):403-28.
66. Castelli Dransart DA. Reclaiming and reshaping life: Patterns of reconstruction after the suicide of a loved one. Qual. Health Res. 2017;27(7):994-1005.
67. Pritchard TR, Buckle JL. Meaning-making after partner suicide: A narrative exploration using the meaning of loss codebook. Death Stud. 2017:1-10.
68. Dyregrov K, Dieserud G, Hjelmeland HM, et al. Meaning-making through psychological autopsy interviews: The value of participating in qualitative research for those bereaved by suicide Death Stud. 2011;35(8):685-710.
69. Dyregrov K, Dieserud G, Straiton M, et al. Motivation for research participation among people bereaved by suicide. Omega 2010;62(2):149-68.
70. Pitman A, Osborn D, King M. Suicide bereavement and risk for suicide attempt: a national cross-sectional survey of young adults. The Lancet 2014;383:S82.
71. Pitman A, Osborn D, King M. The effect of suicide bereavement on suicidal behaviour: a national cross-sectional survey of young adults in the UK. The Lancet 2013;382:S81.

72. Séguin M, Lesage A, Kiely MC. Parental bereavement after suicide and accident: A comparative study. Suicide Life Threat. Behav. 1995;25(4):489-98.
73. Barrett TW, Scott TB. Suicide bereavement and recovery patterns compared with nonsuicide bereavement patterns. Suicide Life Threat. Behav. 1990;20(1):1-15.
74. de Groot MH, de Keijser J, Neeleman J. Grief shortly after suicide and natural death: A comparative study among spouses and first-degree relatives. Suicide Life Threat. Behav. 2006;36(4):418-31.
75. Miyabayashi S, Yasuda J. Effects of loss from suicide, accidents, acute illness and chronic illness on bereaved spouses and parents in Japan: Their general health, depressive mood, and grief reaction. Psychiatry Clin. Neurosci. 2007;61(5):502-08.
76. Pfeffer CR, Karus D, Siegel K, Jiang H. Child survivors of parental death from cancer or suicide: depressive and behavioral outcomes. Psycho-Oncology 2000;9(1):1-10.
77. Reed MD, Greenwald JY. Survivor-victim status, attachment, and sudden death bereavement. Suicide Life Threat. Behav. 1991;21(4):385-401.
78. Harwood D, Hawton K, Hope T, Jacoby R. The grief experiences and needs of bereaved relatives and friends of older people dying through suicide: a descriptive and case-control study. J. Affect. Disord. 2002;72(2):185-94.
79. Mitchell AM, Terhorst L. PTSD Symptoms in Survivors Bereaved by the Suicide of a Significant Other. J. Am. Psychiatr. Nurses Assoc. 2017;23(1):61-65.
80. Pitman A, Osborn D, King M, Erlangsen A. Effects of suicide bereavement on mental health and suicide risk. The Lancet Psychiatry 2014;1(1):86-94.
81. Agerbo E. Risk of suicide and spouse's psychiatric illness or suicide: nested case-control study. BMJ 2003;327(7422):1025-6.
82. Bolton JM, Au W, Leslie WD, et al. Parents bereaved by offspring suicide: a population-based longitudinal case-control study. JAMA Psychiatry 2013;70(2):158-67.
83. Schreiber JK, Sands DC, Jordan JR. The perceived experience of children bereaved by parental suicide. Omega 2017;75(2):184-206.
84. Brent D, Melhem N, Donohoe MB, Walker M. The incidence and course of depression in bereaved youth 21 months after the loss of a parent to suicide, accident, or sudden natural death. Am. J. Psychiatry 2009;166(7):786-94.
85. Melhem NM, Walker M, Moritz G, Brent DA. Antecedents and sequelae of sudden parental death in offspring and surviving caregivers. Arch. Pediatr. Adolesc. Med. 2008;162(5):403-10.
86. Cleiren M, Diekstra RF, Kerkhof AJ, van der Wal J. Mode of death and kinship in bereavement: focusing on "who" rather than "how". Crisis 1994;15(1):22-36.
87. Kitson GC. Adjustment to violent and natural deaths in later and earlier life for black and white widows. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences 2000;55(6):S341-S51.
88. McNiel DE, Hatcher C, Reubin R. Family survivors of suicide and accidental death: Consequences for widows. Suicide Life Threat. Behav. 1988;18(2):137-48.
89. Grad O, Zavasnik A. Phenomenology of bereavement process after suicide, traffic accident and terminal illness (in spouses). Archives of Suicide Research 1999;5(2):157-72.

90. Grad OT, Zavasnik A. Similarities and differences in the process of bereavement after suicide and after traffic fatalities in Slovenia. OMEGA-Journal of Death and Dying 1996;33(3):243-51.
91. Pitman AL, Osborn DP, Rantell K, King MB. The stigma perceived by people bereaved by suicide and other sudden deaths: A cross-sectional UK study of 3432 bereaved adults. J. Psychosom. Res. 2016;87:22-9.
92. Ellenbogen S, Gratton F. Do they suffer more? Reflections on research comparing suicide survivors to other survivors. Suicide Life Threat. Behav. 2001;31(1):83-90.
93. Gibson J, Gallagher M, Jenkins M. The experiences of parents readjusting to the workplace following the death of a child by suicide. Death Stud. 2010;34(6):500-28.
94. Sugrue JL, McGilloway S, Keegan O. The experiences of mothers bereaved by suicide: An exploratory study. Death Stud. 2013;38(2):118-24.
95. Hoffmann WA, Myburgh C, Poggenpoel M. The lived experiences of late-adolescent female suicide survivors:'A part of me died'. Health SA Gesondheid 2010;15(1):1-9.
96. Dyregrov K, Nordanger D, Dyregrov A. Predictors of psychosocial distress after suicide, SIDS and accidents. Death Stud. 2003;27(2):143-65.
97. Cerel J, Fristad MA, Weller EB, Weller RA. Suicide-bereaved children and adolescents: a controlled longitudinal examination. J. Am. Acad. Child Adolesc. Psychiatry 1999;38(6):672-9.
98. Cleiren MPHD, Diekstra RFW, Kerkhof AJFM, van der Wal J. Mode of death and kinship in bereavement: Focusing on 'who' rather than 'how.'. Crisis: The Journal of Crisis Intervention and Suicide Prevention 1994;15(1):22-36.
99. Farberow NL, Gallagher-Thompson D, Gilewski M, Thompson L. Changes in grief and mental health of bereaved spouses of older suicides. J. Gerontol. 1992;47(6):P357-66.
100. Wilcox HC, Mittendorfer-Rutz E, Kjeldgard L, Alexanderson K, Runeson B. Functional impairment due to bereavement after the death of adolescent or young adult offspring in a national population study of 1,051,515 parents. Social Psychiatry & Psychiatric Epidemiology 2015;50(8):1249-56.
101. Xu G, Li N. A comparison study on mental health status between suicide survivors and survivors of accidental deaths in rural China. J. Psychiatr. Ment. Health Nurs. 2014;21(10):859-65.
102. Fielden JM. Grief as a transformative experience: weaving through different lifeworlds after a loved one has completed suicide. Int. J. Ment. Health Nurs. 2003;12(1):74-85.
103. Begley M, Quayle E. The lived experience of adults bereaved by suicide: a phenomenological study. Crisis 2007;28(1):26-34.
104. Trimble T, Hannigan B, Gaffney M. Suicide postvention; coping, support and transformation. The Irish Journal of Psychology 2012;33(2-3):115-21.
105. Maple M, Edwards H, Plummer D, Minichiello V. Silenced voices: hearing the stories of parents bereaved through the suicide death of a young adult child. Health & social care in the community 2010;18(3):241-48 8p.
106. Biddle L. Public hazards or private tragedies? An exploratory study of the effect of coroners' procedures on those bereaved by suicide. Soc. Sci. Med. 2003;56(5):1033-45.

107. Chapple A, Ziebland S, Hawton K. A proper, fitting explanation? : suicide bereavement and perceptions of the coroner's verdict. Crisis: Journal of Crisis Intervention & Suicide 2012;33(4):230-8.
108. Cvinar JG. Do suicide survivors suffer social stigma: A review of the literature. Perspect. Psychiatr. Care 2005;41(1):14-21.
109. Hanschmidt F, Lehnig F, Riedel-Heller SG, Kersting A. The stigma of suicide survivorship and related consequences-A systematic review. PLoS One 2016;11(9):e0162688.
110. Feigelman W, Gorman BS, Jordan JR. Stigmatization and suicide bereavement. Death Stud. 2009;33(7):591-608.
111. Pitman A, Rantell K, Marston L, King M, Osborn D. Perceived stigma of sudden bereavement as a risk factor for suicidal thoughts and suicide attempt: Analysis of British cross-sectional survey data on 3387 young bereaved adults. Int. J. Environ. Res. Public Health 2017;14(3).
112. Pitman A, Rantell K, Moran P, et al. Support received after bereavement by suicide and other sudden deaths: a cross-sectional UK study of 3432 young bereaved adults. BMJ Open 2017;7(5).
113. Jordan JR. Is suicide bereavement different? A reassessment of the literature. Suicide Life Threat. Behav. 2001;31(1):91-102.
114. Sveen C-A, Walby FA. Suicide survivors' mental health and grief reactions: A systematic review of controlled studies. Suicide Life Threat. Behav. 2008;38(1):13-29.
115. Spino E, Kameg KM, Cline TW, Terhorst L, Mitchell AM. Impact of social support on symptoms of depression and loneliness in survivors bereaved by suicide. Arch. Psychiatr. Nurs. 2016;30(5):602-6.
116. Dyregrov K. Assistance from local authorities versus survivors' needs for support after suicide Death Stud. 2002;26(8):647-68.
117. Provini C, Everett JR, Pfeffer CR. Adults mourning suicide: Self-reported concerns about bereavement, needs for assistance, and help-seeking behavior. Death Stud. 2000;24.
118. Shepherd D, Barraclough BM. *Aftermath of Suicide*, 1974.
119. Barraclough BM, Shepherd DM. Public interest: private grief. Br. J. Psychiatry 1976;129:109-13.
120. Barraclough BM, Shepherd DM. The immediate and enduring effects of the inquest on relatives of suicides. Br. J. Psychiatry 1977;131(4):400-04.
121. Hughes ND, Locock L, Simkin S, et al. Making sense of an unknown terrain: How parents understand self-harm in young people. Qual. Health Res. 2017;27(2):215-25.
122. Ferrey AE, Hughes ND, Simkin S, et al. The impact of self-harm by young people on parents and families: a qualitative study. BMJ Open 2016;6(1).
123. Oldershaw A, Richards C, Simic M, Schmidt U. Parents' perspectives on adolescent self-harm: qualitative study. Br. J. Psychiatry 2008;193(2):140-4.
124. Talseth AG, Gilje F, Norberg A. Being met--a passageway to hope for relatives of patients at risk of committing suicide: a phenomenological hermeneutic study. Arch. Psychiatr. Nurs. 2001;15(6):249-56.
125. Buus N, Caspersen J, Hansen R, Stenager E, Fleischer E. Experiences of parents whose sons or daughters have (had) attempted suicide. J. Adv. Nurs. 2014;70(4):823-32.
126. Raphael H, Clarke G, Kumar S. Exploring parents' responses to their child's deliberate self-harm. Health Educ. 2006;106(1):9-20.

127. McDonald G, O'Brien L, Jackson D. Guilt and shame: experiences of parents of self-harming adolescents. Journal of child health care : for professionals working with children in the hospital and community 2007;11(4):298-310.
128. Ferrey AE, Hughes ND, Simkin S, et al. Changes in parenting strategies after a young person's self-harm: a qualitative study. Child and adolescent psychiatry and mental health 2016;10:20.
129. Lindgren BM, Åström S, Graneheim UH. Held to ransom: Parents of self-harming adults describe their lived experience of professional care and caregivers. International Journal of Qualitative Studies on Health and Well-being 2010;5(3).
130. Daly P. Mothers living with suicidal adolescents: a phenomenological study of their experience. J. Psychosoc. Nurs. Ment. Health Serv. 2005;43(3):22-8.
131. Byrne S, Morgan S, Fitzpatrick C, et al. Deliberate self-harm in children and adolescents: a qualitative study exploring the needs of parents and carers. Clin. Child Psychol. Psychiatry 2008;13(4):493-504.
132. Ferrey AE, Hawton K, Simkin S, Hughes N, Stewart A, Locock L. "As a parent, there is no rulebook": a new resource for parents and carers of young people who self-harm. The Lancet Psychiatry 2015;2(7):577-79.
133. Brent DA, Bridge J, Johnson BA, Connolly J. Suicidal behavior runs in families. A controlled family study of adolescent suicide victims. Arch. Gen. Psychiatry 1996;53(12):1145-52.
134. Brent DA, Oquendo M, Birmaher B, et al. Familial pathways to early-onset suicide attempt: risk for suicidal behavior in offspring of mood-disordered suicide attempters. Arch. Gen. Psychiatry 2002;59(9):801-07.
135. Brent D. What family studies teach us about suicidal behavior: implications for research, treatment, and prevention. Eur. Psychiatry 2010;25(5):260-3.
136. Brent DA, Melhem NM, Mann JJ. Pathways to offspring suicidal behavior may begin with maternal suicide attempt. J. Am. Acad. Child Adolesc. Psychiatry 2015;54(10):868.
137. Christiansen E, Goldney RD, Beautrai A, Agerbo E. Youth suicide attempts and the dose–response relationship to parental risk factors: a population-based study. Psychol. Med. 2011;41(02):313-19.
138. Geulayov G, Metcalfe C, Heron J, Kidger J, Gunnell D. Parental suicide attempt and offspring self-harm and suicidal thoughts: Results from the Avon Longitudinal Study of Parents and Children (ALSPAC) birth cohort. J. Am. Acad. Child Adolesc. Psychiatry 2014;53(5):509-17.e2.
139. Barksdale CL, Walrath CM, Compton JS, Goldston DB. Caregiver strain and youth suicide attempt: Are they related? Suicide Life Threat. Behav. 2009;39(2):152-60.
140. Wagner BM, Aiken C, Mullaley PM, Tobin JJ. Parents' reactions to adolescents' suicide attempts. J. Am. Acad. Child Adolesc. Psychiatry 2000;39(4):429-36.
141. Kjellin L, Ostman M. Relatives of psychiatric inpatients--do physical violence and suicide attempts of patients influence family burden and participation in care? Nord J Psychiatry 2005;59(1):7-11.
142. Chessick CA, Perlick DA, Miklowitz DJ, et al. Current suicide ideation and prior suicide attempts of bipolar patients as influences on caregiver burden. Suicide Life Threat. Behav. 2007;37(4):482-91.
143. Morgan S, Rickard E, Noone M, et al. Parents of young people with self-harm or suicidal behaviour who seek help - a psychosocial profile. Child and adolescent psychiatry and mental health 2013;7(1):13.

144. Melhem NM, Brent DA, Ziegler M, et al. Familial pathways to early-onset suicidal behavior: familial and individual antecedents of suicidal behavior. The American journal of psychiatry 2007;164(9):1364-70.
145. Lieb R, Bronisch T, Hofler M, Schreier A, Wittchen HU. Maternal suicidality and risk of suicidality in offspring: findings from a community study. Am. J. Psychiatry 2005;162(9):1665-71.
146. McLaughlin C, McGowan I, O'Neill S, Kernohan G. The burden of living with and caring for a suicidal family member. Journal of mental health (Abingdon, England) 2014;23(5):236-40.
147. Sun FK, Long A, Huang XY, Huang HM. Family care of Taiwanese patients who had attempted suicide: a grounded theory study. J. Adv. Nurs. 2008;62(1):53-61.
148. ten Have M, de Graaf R, van Dorsselaer S, et al. Incidence and course of suicidal ideation and suicide attempts in the general population. Can. J. Psychiatry. 2009;54(12):824-33.
149. Asare-Doku W, Osafo J, Akotia CS. The experiences of attempt survivor families and how they cope after a suicide attempt in Ghana: a qualitative study. BMC Psychiatry 2017;17(1):178.
150. Power L, Morgan S, Byrne S, et al. A pilot study evaluating a support programme for parents of young people with suicidal behaviour. Child and adolescent psychiatry and mental health 2009;3(1):20.
151. Rissanen ML, Kylma JP, Laukkanen ER. Parental conceptions of self-mutilation among Finnish adolescents. J. Psychiatr. Ment. Health Nurs. 2008;15(3):212-8.
152. Szumilas M, Kutcher S. Post-suicide intervention programs: a systematic review. Can. J. Public Health. 2011;102(1):18-29.
153. Jordan JR. Postvention is prevention-The case for suicide postvention. Death Stud. 2017;41(10):614-21.
154. Andriessen K, Krysinska K. Essential questions on suicide bereavement and postvention. International Journal of Environmental Research & Public Health [Electronic Resource] 2012;9(1):24-32.
155. Andriessen K, Castelli Dransart DA, Cerel J, Maple M. Current postvention research and priorities for the future. Crisis 2017:1-5.
156. Andriessen K. Suicide bereavement and postvention in major suicidology journals: lessons learned for the future of postvention. Crisis 2014;35(5):338-48.
157. Aguirre RTP, Slater H. Suicide postvention as suicide prevention: Improvement and expansion in the United States. Death Stud. 2010;34(6):529-40.
158. Pereira M, Dyregrov K, Hauken MA, Senneseth M, Dyregrov A. Systematic early intervention for bereaved: Study protocol of a pilot randomized controlled trial with families who suddenly lose a partner and a parent. JMIR Research Protocols 2016;5(3):e152.
159. McDaid C, Trowman R, Golder S, Hawton K, Sowden A. Interventions for people bereaved through suicide: systematic review. Br. J. Psychiatry 2008;193(6):438-43.
160. Linde K, Treml J, Steinig J, Nagl M, Kersting A. Grief interventions for people bereaved by suicide: A systematic review. PLoS One 2017;12(6):e0179496.
161. Dyregrov K. What do we know about needs for help after suicide in different parts of the world? A phenomenological perspective. Crisis 2011;32(6):310-8.

162. Miers D, Abbott D, Springer PR. A phenomenological study of family needs following the suicide of a teenager. Death Stud. 2012;36(2):118-33.
163. McMenamy JM, Jordan JR, Mitchell AM. What do suicide survivors tell us they need? Results of a pilot study. Suicide Life Threat. Behav. 2008;38(4):375-89.
164. Dyregrov K, Dyregrov A, Johnsen I. Positive and negative experiences from grief group participation: a qualitative study. Omega 2013;68(1):45-62.
165. Arensman E. Suicide Prevention in an International Context. Crisis 2017;38(1):1-6.
166. Cottrell DJ, Wright-Hughes A, Collinson M, et al. Effectiveness of systemic family therapy versus treatment as usual for young people after self-harm: a pragmatic, phase 3, multicentre, randomised controlled trial. The lancet. Psychiatry 2018;5(3):203-16.
167. Asarnow JR, Hughes JL, Babeva KN, Sugar CA. Cognitive-behavioral family treatment for suicide attempt prevention: A randomized controlled trial. J. Am. Acad. Child Adolesc. Psychiatry 2017;56(6):506-14.
168. Mark L, Samm A, Tooding LM, et al. Suicidal ideation, risk factors, and communication with parents. An HBSC study on school children in Estonia, Lithuania, and Luxembourg. Crisis 2013;34(1):3-12.
169. Grant C, Ballard ED, Olson-Madden JH. An empowerment approach to family caregiver involvement in suicide prevention. The Family Journal 2015;23(3):295-304.
170. Owens C, Owen G, Belam J, et al. Recognising and responding to suicidal crisis within family and social networks: qualitative study. BMJ : British Medical Journal 2011;343.
171. McLaughlin C, McGowan I, Kernohan G, O'Neill S. The unmet support needs of family members caring for a suicidal person. Journal of mental health (Abingdon, England) 2016;25(3):212-6.
172. Nock MK, Borges G, Bromet EJ, et al. Cross-national prevalence and risk factors for suicidal ideation, plans, and attempts. The British Journal of Psychiatry 2008;192:98-105.
173. de Groot M, Kollen BJ. Course of bereavement over 8-10 years in first degree relatives and spouses of people who committed suicide: longitudinal community based cohort study. BMJ : British Medical Journal 2013;347.
174. Mittendorfer-Rutz E, Rasmussen F, Lange T. A life-course study on effects of parental markers of morbidity and mortality on offspring's suicide attempt. PLoS One 2012;7(12):e51585.
175. Brent DA, Melhem NM, Oquendo M, et al. Familial pathways to early-onset suicide attempt: A 5.6-year prospective study. JAMA Psychiatry 2015;72(2):160-68.
176. Family genetic studies, suicide, and suicidal behavior. American Journal of Medical Genetics Part C: Seminars in Medical Genetics; 2005. Wiley Online Library.
177. Teherani A, Martimianakis T, Stenfors-Hayes T, Wadhwa A, Varpio L. Choosing a qualitative research approach. J. Grad. Med. Educ. 2015;7(4):669-70.
178. Guba EG, Lincoln YS. Competing paradigms in qualitative research. Handbook of qualitative research 1994;2(163-194):105.
179. Petty NJ, Thomson OP, Stew G. Ready for a paradigm shift? Part 1: introducing the philosophy of qualitative research. Man. Ther. 2012;17(4):267-74.

180. Morgan D. Pragmatism as a paradigm for social research. Qualitative Inquiry 2014;20(8):1045-53.
181. Slevitch L. Qualitative and quantitative methodologies compared: Ontological and epistemological perspectives. Journal of Quality Assurance in Hospitality & Tourism 2011;12(1):73-81.
182. World Health Organisation CGF. Integrating the response to mental disorders and other chronic diseases in healthcare systems. Geneva: World Health Organisation, 2014:1-50.
183. Onwuegbuzie AJ, Leech NL. On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. International Journal of Social Research Methodology 2005;8(5):375-87.
184. Ponterotto JG. Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. J. Couns. Psychol. 2005;52(2):126.
185. Morgan DL. Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. Journal of Mixed Methods Research 2007;1(1):48-76.
186. Atieno OP. An analysis of the strengths and limitation of qualitative and quantitative research paradigms. Problems of Education in the 21st Century 2009;13(1):13-38.
187. Lyons E, Coyle A. *Analysing Qualitative Data in Psychology*. 2nd Edition ed. London: SAGE, 2016.
188. Chih L. Bridging positivist and interpretivist approaches to qualitative methods. Policy Studies Journal 1998;26(1):162-80.
189. Creswell JW, Plano Clark VL. *Designing and Conducting Mixed Methods Research*. London: SAGE Publications 2007.
190. Hjelmeland H, Dieserud G, Dyregrov K, Knizek BL, Rasmussen ML. Suicide and mental disorders. Tidsskr. Nor. Laegeforen. 2014;134(14):1369-70.
191. Tariq S, Woodman J. Using mixed methods in health research. JRSM Short Reports 2013;4(6):2042533313479197.
192. Dahlberg L, Krug E. Violence -a global public health problem. In: Krug E, Dahlberg L, Mercy J, Zwi A, Lozano R, eds. World Report on Violence and Health. Geneva, Switzerland, 2002:1-56.
193. Postuvan V. *The Growing Flower Model of Reintegration After Suicide in Postvention in Action: The International Handbook of Suicide Bereavement Support*: Hogrefe Publishing, 2017.
194. Robinson T. Applying the socio-ecological model to improving fruit and vegetable intake among low-income African Americans. J. Community Health 2008;33(6):395-406.
195. Langille J-LD, Rodgers WM. Exploring the influence of a social ecological model on school-based physical activity. Health Educ. Behav. 2010;37(6):879-94.
196. Baral S, Logie CH, Grosso A, Wirtz AL, Beyrer C. Modified social ecological model: a tool to guide the assessment of the risks and risk contexts of HIV epidemics. BMC Public Health 2013;13(1):482.
197. Swearer SM, Espelage DL. A social-ecological model for bullying prevention and intervention: Understanding the impact of adults in the social ecology of youngsters. Handbook of Bullying in Schools: Routledge, 2009:71-82.

198. Rasmussen ML, Haavind H, Dieserud G, Dyregrov K. Exploring vulnerability to suicide in the developmental history of young men: A psychological autopsy study. Death Stud. 2014;38(9):549-56.
199. Kiamanesh P, Dyregrov K, Haavind H, Dieserud G. Suicide and perfectionism: A psychological autopsy study of non-clinical suicides. OMEGA - Journal of Death and Dying 2014;69(4):381-99.
200. Castelli Dransart DA. From sense-making to meaning-making: Understanding and supporting survivors of suicide. British Journal of Social Work 2013.
201. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology 2006;3(2):77-101.
202. Lorelli SN, Jill MN, Deborah EW, Nancy JM. Thematic analysis: Striving to meet the trustworthiness criteria. International Journal of Qualitative Methods 2017;16(1):1609406917733847.
203. Braun V, Clarke V. What can "thematic analysis" offer health and wellbeing researchers? International Journal of Qualitative Studies on Health and Well-being 2014;9:10.3402/qhw.v9.26152.
204. Smith J, Osborn M. *Interpretive phenomenological analysis. In J.A. Smith (Ed.) Qualitative psychology: A practical guide to research methods*. London: SAGE, 2003.
205. Brocki JM, Wearden AJ. A critical evaluation of the use of interpretative phenomenological analysis (IPA) in health psychology. Psychol. Health 2006;21(1):87-108.
206. Eatough V, Smith JA. Interpretative phenomenological analysis. In: Wallig C, Stainton-Rogers W, eds. The Sage handbook of qualitative research in psychology. 1st edn. ed. Los Angeles, California: Sage, 2008.
207. Smith J, Flowers P, Larkin M. *Interpretative Phenomenological Analysis: Theory, Method and Research*: SAGE Publications Ltd, 2009.
208. Larkin M, Watts S, Clifton E. Giving voice and making sense in interpretative phenomenological analysis. Qualitative Research in Psychology 2006;3(2):102-20.
209. Gillon R. Medical ethics: four principles plus attention to scope. BMJ 1994;309(6948):184.
210. Andriessen K, Krysinska K, Draper B, Dudley M, Mitchell PB. Harmful or helpful? A systematic review of how those bereaved through suicide experience research participation. Crisis 2018:1-13.
211. Dyregrov K. Bereaved parents' experience of research participation. Soc. Sci. Med. 2004;58(2):391-400.
212. Groos AD, Shakespeare-Finch J. Positive experiences for participants in suicide bereavement groups: a grounded theory model. Death Stud. 2013;37(1):1-24.
213. Omerov P, Steineck G, Dyregrov K, Runeson B, Nyberg U. The ethics of doing nothing. Suicide-bereavement and research: ethical and methodological considerations. Psychol. Med. 2014;44(16):3409-20.
214. Gould MS, Marrocco FA, Kleinman M, et al. Evaluating iatrogenic risk of youth suicide screening programs: a randomized controlled trial. JAMA 2005;293(13):1635-43.
215. Dazzi T, Gribble R, Wessely S, Fear NT. Does asking about suicide and related behaviours induce suicidal ideation? What is the evidence? Psychol. Med. 2014;44(16):3361-63.

216. Mathias CW, Furr RM, Sheftall AH, Hill-Kapturczak N, Crum P, Dougherty DM. What's the harm in asking about suicidal ideation? Suicide Life Threat. Behav. 2012;42(3):341-51.
217. Shear MK, Simon N, Wall M, et al. Complicated grief and related bereavement issues for DSM-5. Depress. Anxiety 2011;28(2):103-17.
218. Shear MK. Getting straight about grief. Depress. Anxiety 2012;29(6):461-4.
219. Shepard DS, Gurewich D, Lwin AK, Reed GA, Jr., Silverman MM. Suicide and suicidal attempts in the United States: Costs and policy implications. Suicide Life Threat. Behav. 2016;46(3):352-62.
220. Etzersdorfer E, Klein J, Baus N, Sonneck G, Kapusta ND. Epidemiology of suicide in Austria during 2000-2010: potential years of life lost: time for the national suicide prevention program. Wien Klin Wochenschr 2015;127(7-8):308-13.
221. Sun L, Zhang J. Potential years of life lost due to suicide in China, 2006–2010. Public Health 2015;129(5):555-60.
222. Lukaschek K, Erazo N, Baumert J, Ladwig K-H. Suicide mortality in comparison to traffic accidents and homicides as causes of unnatural death. An analysis of 14,441 cases in Germany in the year 2010. Int. J. Environ. Res. Public Health 2012;9(3):924-31.
223. Hagquist C. Psychosomatic health problems among adolescents in Sweden—are the time trends gender related? Eur. J. Public Health 2009;19(3):331-36.
224. Ohrnberger J, Fichera E, Sutton M. The dynamics of physical and mental health in the older population. The Journal of the Economics of Ageing 2017;9:52-62.
225. Hasan SS, Clavarino AM, Mamun AA, Kairuz T. Incidence and risk of diabetes mellitus associated with depressive symptoms in adults: evidence from longitudinal studies. Diabetes Metab. Syndr. 2014;8(2):82-7.
226. Mezuk B, Eaton WW, Albrecht S, Golden SH. Depression and type 2 diabetes over the lifespan: a meta-analysis. Diabetes Care 2008;31(12):2383-90.
227. Golden SH, Lazo M, Carnethon M, et al. Examining a bidirectional association between depressive symptoms and diabetes. JAMA 2008;299(23):2751-9.
228. Wirtz PH, von Kanel R. Psychological Stress, Inflammation, and Coronary Heart Disease. Curr. Cardiol. Rep. 2017;19(11):111.
229. McIntosh JL. Control group studies of suicide survivors: A review and critique. Suicide Life Threat. Behav. 1993;23(2):146-61.
230. Mitchell AM, Kim Y, Prigerson HG, Mortimer-Stephens M. Complicated grief in survivors of suicide. Crisis: The Journal of Crisis Intervention and Suicide Prevention 2004;25(1):12.
231. Huang J, Valdimarsdottir U, Fall K, Ye W, Fang F. Pancreatic cancer risk after loss of a child: a register-based study in Sweden during 1991-2009. Am. J. Epidemiol. 2013;178(4):582-9.
232. Farberow NL, Gallagher DE, Gilewski MJ, Thompson LW. An examination of the early impact of bereavement on psychological distress in survivors of suicide. The Gerontologist 1987;27(5):592-98.
233. Farberow NL, Gallagher-Thompson D, Gilewski M, Thompson L. Changes in grief and mental health of bereaved spouses of older suicides. Journals of Gerontology 1992;47(6):P357-P66.
234. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Ann. Intern. Med. 2009;151(4):264-9, w64.

235. Momen NC, Olsen J, Gissler M, Cnattingius S, Li J. Early life bereavement and childhood cancer: a nationwide follow-up study in two countries. BMJ Open 2013;3(5).
236. Perera S, Eisen RB, Dennis BB, et al. Body mass index is an important predictor for suicide: Results from a systematic review and meta-analysis. Suicide Life Threat. Behav. 2016:n/a-n/a.
237. Gilewski MJ, Farberow NL, Gallagher DE, Thompson LW. Interaction of depression and bereavement on mental health in the elderly. Psychology and Aging 1991;6(1):67-75.
238. Erlangsen A, Runeson B, Bolton JM, et al. Association between spousal suicide and mental, physical, and social health outcomes: A longitudinal and nationwide register-based study. JAMA Psychiatry 2017.
239. Demi AS, Miles MS. Suicide bereaved parents: Emotional distress and physical health problems. Death Stud. 1988;12(4):297-307.
240. Fang F, Fall K, Sparen P, et al. Risk of infection-related cancers after the loss of a child: a follow-up study in Sweden. Cancer Res. 2011;71(1):116-22.
241. Kennedy B, Valdimarsdottir U, Sundstrom K, et al. Loss of a parent and the risk of cancer in early life: a nationwide cohort study. Cancer Causes Control 2014;25(4):499-506.
242. Weinberg RJ, Dietz LJ, Stoyak S, et al. A prospective study of parentally bereaved youth, caregiver depression, and body mass index. J. Clin. Psychiatry 2013;74(8):834-40.
243. Sanford R, Cerel J, McGann V, Maple M. Suicide loss survivors' experiences with therapy: Implications for clinical practice. Community Ment. Health J. 2016;52(5):551-8.
244. Shear K, Shair H. Attachment, loss, and complicated grief. Dev. Psychobiol. 2005;47(3):253-67.
245. Brown AC, Sandler IN, Tein JY, Liu X, Haine RA. Implications of parental suicide and violent death for promotion of resilience of parentally-bereaved children. Death Stud. 2007;31(4):301-35.
246. Lichtenthal WG, A. NR, M. CJ, Kailey R, Nancy J. Cause of death and the quest for meaning after the loss of a child. Death Stud. 2013;37(4):311-42.
247. Feigelman W, Jordan JR, Gorman BS. Parental grief after a child's drug death compared to other death causes: investigating a greatly neglected bereavement population. Omega 2011;63(4):291-316.
248. Sin NL. The protective role of positive well-being in cardiovascular disease: Review of current evidence, mechanisms, and clinical implications. Curr. Cardiol. Rep. 2016;18(11):106.
249. Whooley MA, Wong JM. Depression and cardiovascular disorders. Annu. Rev. Clin. Psychol. 2013;9:327-54.
250. Tosevski DL, Milovancevic MP. Stressful life events and physical health. Current opinion in psychiatry 2006;19(2):184-9.
251. Stroebe M, Schut H, Stroebe W. Health outcomes of bereavement. The Lancet 2007;370(9603):1960-73.
252. Wilcox H, Mittendorfer-Rutz E, Kjeldgård L, Alexanderson K, Runeson B. Functional impairment due to bereavement after the death of adolescent or young adult offspring in a national population study of 1,051,515 parents. Soc. Psychiatry Psychiatr. Epidemiol. 2015:1-8.

253. Owens C, Lambert H, Lloyd K, Donovan J. Tales of biographical disintegration: how parents make sense of their sons' suicides. Sociol. Health Illn. 2008;30(2):237-54.
254. Sugrue JL, McGilloway S, Keegan O. The Experiences of Mothers Bereaved by Suicide: An Exploratory Study. Death Studies 2014;38(2):118-24 7p.
255. Murphy SA, Johnson LC. Finding meaning in a child's violent death: a five-year prospective analysis of parents' personal narratives and empirical data. Death Stud. 2003;27(5):381-404.
256. Neimeyer RA, Prigerson HG, Davies B. Mourning and Meaning. Am. Behav. Sci. 2002;46(2):235-51.
257. Smith A, Joseph S, Nair R. An interpretative phenomenological analysis of posttraumatic growth in adults bereaved by suicide. Journal of Loss and Trauma 2011;16(5):413-30.
258. Linley PA, Joseph S. Positive change following trauma and adversity: a review. J. Trauma. Stress 2004;17(1):11-21.
259. Feigelman W, Jordan JR, Gorman BS. Personal growth after a suicide loss: cross-sectional findings suggest growth after loss may be associated with better mental health among survivors. Omega 2009;59(3):181-202.
260. Johnson RB, Onwuegbuzie AJ. Mixed methods research: A research paradigm whose time has come. Educational researcher 2004;33(7):14-26.
261. Neimeyer RA, Klass D, Dennis MR. A social constructionist account of grief: loss and the narration of meaning. Death Stud. 2014;38(6-10):485-98.
262. Gunnell D, Bennewith O, Simkin S, et al. Time trends in coroners' use of different verdicts for possible suicides and their impact on officially reported incidence of suicide in England: 1990-2005. Psychol. Med. 2013;43(7):1415-22.
263. Palmer BS, Bennewith O, Simkin S, et al. Factors influencing coroners' verdicts: an analysis of verdicts given in 12 coroners' districts to researcher-defined suicides in England in 2005. Journal of Public Health 2015;37(1):157-65.
264. Dennis M, Read S, Andrews H, Wakefield P, Zafar R, Kavi S. Suicide in a single health district: Epidemiology, and involvement of psychiatric services. Journal of Mental Health 2001;10(6):673-82.
265. Rosenberg ML, Davidson LE, Smith JC, et al. Operational criteria for the determination of suicide. J. Forensic Sci. 1988;33(6):1445-56.
266. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behav. Res. Ther. 1995;33(3):335-43.
267. Brown TA, Chorpita BF, Korotitsch W, Barlow DH. Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. Behav. Res. Ther. 1997;35(1):79-89.
268. Antony MM, Bieling PJ, Cox BJ, Enns MW, Swinson RP. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. Psychol. Assess. 1998;10(2):176-81.
269. Francis JJ, Johnston M, Robertson C, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. Psychol. Health 2010;25(10):1229-45.

270. O'Reilly M, Parker N. 'Unsatisfactory Saturation': a critical exploration of the notion of saturated sample sizes in qualitative research. Qualitative Research 2013;13(2):190-97.
271. Guest G, Bunce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. Field Methods 2006;18(1):59-82.
272. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int. J. Qual. Health Care 2007;19(6):349-57.
273. Gail M. Sullivan, Joan Sargeant. Qualities of qualitative research: Part I. J. Grad. Med. Educ. 2011;3(4):449-52.
274. Hawton K, Houston K, Malmbergand A, Simkin S. Psychological autopsy interviews in suicide research: The reactions of informants. Archives of Suicide Research 2003;7(1):73-82.
275. Wong PW, Chan WS, Beh PS, Yau FW, Yip PS, Hawton K. Research participation experiences of informants of suicide and control cases: taken from a case-control psychological autopsy study of people who died by suicide. Crisis 2010;31(5):238-46.
276. Biddle L, Cooper J, Owen-Smith A, et al. Qualitative interviewing with vulnerable populations: individuals' experiences of participating in suicide and self-harm based research. J. Affect. Disord. 2013;145(3):356-62.
277. Berman AL. Estimating the population of survivors of suicide: Seeking an evidence base. Suicide Life Threat. Behav. 2011;41(1):110-16.
278. Wilcox HC, Kuramoto SJ, Lichtenstein P, Långström N, Brent DA, Runeson B. Psychiatric morbidity, violent crime, and suicide among children and adolescents exposed to parental death. J. Am. Acad. Child Adolesc. Psychiatry 2010;49(5):514-23.
279. Spillane A, Larkin C, Corcoran P, Matvienko-Sikar K, Riordan F, Arensman E. Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review. BMC Public Health Forthcoming 2017.
280. Pitman AL, Hunt IM, McDonnell SJ, Appleby L, Kapur N. Support for relatives bereaved by psychiatric patient suicide: National confidential inquiry into suicide and homicide findings. Psychiatr. Serv. 2016:appi.ps.201600004.
281. Brown J, Evans-Lacko S, Aschan L, Henderson MJ, Hatch SL, Hotopf M. Seeking informal and formal help for mental health problems in the community: a secondary analysis from a psychiatric morbidity survey in South London. BMC Psychiatry 2014;14(1):275.
282. Wilson A, Marshall A. The support needs and experiences of suicidally bereaved family and friends. Death Stud. 2010;34(7):625-40.
283. Rogers J, Apel S. Revitalizing suicidology: A call for mixed methods designs. Suicidology Online 2010;1:95-98.
284. Creswell JW. *A Concise Introduction to Mixed Methods Research*. Los Angeles: SAGE Publications, 2015.
285. Spillane A, Larkin C, Corcoran P, Matvienko-Sikar K, Arensman E. What are the physical and psychological health effects of suicide bereavement on family members? Protocol for an observational and interview mixed-methods study in Ireland. BMJ Open 2017;7(3):e014707.
286. Isometsä ET. Psychological autopsy studies – a review. Eur. Psychiatry 2001;16(7):379-85.

287. Conner KR, Beautrais AL, Brent DA, Conwell Y, Phillips MR, Schneider B. The next generation of psychological autopsy studies. Part I. Interview content. Suicide Life Threat. Behav. 2011;41(6):594-613.
288. Freuchen A, Kjelsberg E, Grøholt B. Suicide or accident? A psychological autopsy study of suicide in youths under the age of 16 compared to deaths labeled as accidents. Child and adolescent psychiatry and mental health 2012;6:30-30.
289. Wong PWC, Chan WSC, Chen EYH, Chan SSM, Law YW, Yip PSF. Suicide among adults aged 30–49: A psychological autopsy study in Hong Kong. BMC Public Health 2008;8:147-47.
290. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety & Stress Scales*. 2nd Edition ed. Sydney Psychology Foundation 1995.
291. Cheung T, Wong SY, Wong KY, et al. Depression, anxiety and symptoms of stress among baccalaureate nursing students in Hong Kong: A cross-sectional study. Int. J. Environ. Res. Public Health 2016;13(8).
292. Parkitny L, McAuley J. The Depression Anxiety Stress Scale (DASS). J. Physiother. 2010;56(3):204.
293. Sinclair SJ, Siefert CJ, Slavin-Mulford JM, Stein MB, Renna M, Blais MA. Psychometric evaluation and normative data for the depression, anxiety, and stress scales-21 (DASS-21) in a nonclinical sample of U.S. adults. Eval. Health Prof. 2012;35(3):259-79.
294. Henry JD, Crawford JR. The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. Br. J. Clin. Psychol. 2005;44(2):227-39.
295. Crawford JR, Henry JD. The Depression Anxiety Stress Scales (DASS): normative data and latent structure in a large non-clinical sample. Br. J. Clin. Psychol. 2003;42(Pt 2):111-31.
296. Grad OT, Clark S, Dyregrov K, Andriessen K. What helps and what hinders the process of surviving the suicide of somebody close? Crisis 2004;25(3):134-9.
297. Maple M, Cerel J, Jordan JR, McKay K. Uncovering and identifying the missing voices in suicide bereavement. Suicidology Online 2014;5:1-12.
298. Pritchard C, Hansen L. Examining undetermined and accidental deaths as source of 'under-reported-suicide' by age and sex in twenty Western countries. Community Ment. Health J. 2015;51(3):365-76.
299. Bakst SS, Braun T, Zucker I, Amitai Z, Shohat T. The accuracy of suicide statistics: are true suicide deaths misclassified? Soc. Psychiatry Psychiatr. Epidemiol. 2016;51(1):115-23.
300. Chang SS, Sterne JA, Lu TH, Gunnell D. 'Hidden' suicides amongst deaths certified as undetermined intent, accident by pesticide poisoning and accident by suffocation in Taiwan. Soc. Psychiatry Psychiatr. Epidemiol. 2010;45(2):143-52.
301. Cerel J, Jordan JR, Duberstein PR. The impact of suicide on the family. Crisis: The Journal of Crisis Intervention and Suicide Prevention 2008;29(1):38.
302. Spillane A, Matvienko-Sikar K, Larkin C, Corcoran P, Arensman E. What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland. BMJ Open 2018;8(1).
303. Spillane A, Larkin C, Corcoran P, Matvienko-Sikar K, Riordan F, Arensman E. Physical and psychosomatic health outcomes in people bereaved by suicide

compared to people bereaved by other modes of death: a systematic review. BMC Public Health 2017;17(1):939.
304. Varnik P, Sisask M, Varnik A, et al. Suicide registration in eight European countries: A qualitative analysis of procedures and practices. Forensic Sci. Int. 2010;202(1-3):86-92.
305. Haskins J. Review of the coroner service. Dublin: Department of Justice, Equality and Law Reform, 2000:172.
306. Petrus Consulting, Bates U, Jordan N, et al. Review of General Bereavement Support and Specific Services Available Following Suicide Bereavement. Dublin, 2008.
307. Andrews T. What is social constructionism? Grounded Theory Review 2012;11(1):39-46.
308. Schut M, Stroebe H. The dual process model of coping with bereavement: Rationale and description. Death Stud. 1999;23(3):197-224.
309. Shear K, Monk T, Houck P, et al. An attachment-based model of complicated grief including the role of avoidance. Eur. Arch. Psychiatry Clin. Neurosci. 2007;257(8):453-61.
310. Shear MK. Complicated grief treatment: the theory, practice and outcomes. Bereavement care : for all those who help the bereaved 2010;29(3):10-14.
311. Tal I, Mauro C, Reynolds CF, et al. Complicated grief after suicide bereavement and other causes of death. Death Stud. 2016:1-9.
312. McDaid D, Tsiachristas A, Hawton K. Understanding the true economic impact of self-harming behaviour – Authors' reply. The Lancet Psychiatry 2017;4(12):901.
313. Kinchin I, Doran CM, Hall WD, Meurk C. Understanding the true economic impact of self-harming behaviour. The Lancet Psychiatry 2017;4(12):900-01.
314. Douglas J, Cooper J, Amos T, Webb R, Guthrie E, Appleby L. "Near-fatal" deliberate self-harm: characteristics, prevention and implications for the prevention of suicide. J. Affect. Disord. 2004;79(1):263-68.
315. Gunnell D, Bennewith O, Hawton K, Simkin S, Kapur N. The epidemiology and prevention of suicide by hanging: a systematic review. Int. J. Epidemiol. 2005;34(2):433-42.
316. Mergl R, Koburger N, Heinrichs K, et al. What are reasons for the large gender differences in the lethality of suicidal acts? An epidemiological analysis in four European countries. PLoS One 2015;10(7):e0129062.
317. Park S, Ahn MH, Lee A, Hong JP. Associations between changes in the pattern of suicide methods and rates in Korea, the US, and Finland. International journal of mental health systems 2014;8:22.
318. Smith J, Osborn M. Interpretative Phenomenological Analysis In: Smith J, ed. Qualitative Psychology: A Practical Guide to Research Methods. Second Edition ed: SAGE Publications, 2007:288.
319. Smith JA. Evaluating the contribution of interpretative phenomenological analysis. Health Psychol. Rev. 2010;5(1):9-27.
320. Smith JA. Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. Qualitative Research in Psychology 2004;1(1):39-54.
321. Bhar S, Ghahramanlou-Holloway M, Brown G, Beck AT. Self-esteem and suicide ideation in psychiatric outpatients. Suicide Life Threat. Behav. 2008;38(5):511-6.

322. Aggarwal S, Patton G. Engaging families in the management of adolescent self-harm. Evidence-based mental health 2018.
323. Trepal HC, Wester KL, MacDonald CA. Self-injury and postvention: Responding to the family in crisis. The Family Journal 2006;14(4):342-48.
324. Overton BL, Cottone RR. Anticipatory Grief : A Family Systems Approach. The Family Journal 2016;24(4):430-32.
325. Torraville MA. Adolescent suicidal behaviours: A phenomonological study of mothers' experiences. Memorial Universirt of Newfoundland, St. John's, 2000.
326. Chan MK, Bhatti H, Meader N, et al. Predicting suicide following self-harm: systematic review of risk factors and risk scales. Br. J. Psychiatry 2016;209(4):277-83.
327. Brewin CR, Holmes EA. Psychological theories of posttraumatic stress disorder. Clin. Psychol. Rev. 2003;23(3):339-76.
328. Layte R, Nolan B. Equity in the utilisation of health care in Ireland. Economic & Social Review. Dublin: Economic & Social Research Institute, 2004
329. McNamara A, Normand C, Whelan B. Patterns and determinants of healthcare utilisation in Ireland. Dublin: Trinity College Dublin, 2013:48.
330. Department of Health. Connecting for Life – Ireland's National Strategy to Reduce Suicide 2015-2020. Dublin: Health Service Executive, 2015:152.
331. Bradley CP. GPs and mental health. European Journal of General Practice 2008;14(1):2-3.
332. Pigeon WR, Pinquart M, Conner K. Meta-analysis of sleep disturbance and suicidal thoughts and behaviors. J. Clin. Psychiatry 2012;73(9):e1160-7.
333. Bernert RA, Joiner TE. Sleep disturbances and suicide risk: A review of the literature. Neuropsychiatr. Dis. Treat. 2007;3(6):735-43.
334. Winsper C, Tang NK. Linkages between insomnia and suicidality: prospective associations, high-risk subgroups and possible psychological mechanisms. International review of psychiatry (Abingdon, England) 2014;26(2):189-204.
335. Woznica AA, Carney CE, Kuo JR, Moss TG. The insomnia and suicide link: toward an enhanced understanding of this relationship. Sleep Med. Rev. 2015;22:37-46.
336. Nadorff MR, Nazem S, Fiske A. Insomnia symptoms, nightmares, and suicidal ideation in a college student sample. Sleep 2011;34(1):93-98.
337. Golding S, Nadorff MR, Winer ES, Ward KC. Unpacking sleep and suicide in older adults in a combined online sample. J. Clin. Sleep Med. 2015;11(12):1385-92.
338. Littlewood DL, Gooding PA, Panagioti M, Kyle SD. Nightmares and suicide in posttraumatic stress disorder: The mediating role of defeat, entrapment, and hopelessness. J. Clin. Sleep Med. 2016;12(3):393-9.
339. Segerstrom SC, O'Connor DB. Stress, health and illness: four challenges for the future. Psychol. Health 2012;27(2):128-40.
340. Cohen DJ, Crabtree BF. Evaluative criteria for qualitative research in health care: controversies and recommendations. Ann. Fam. Med. 2008;6(4):331-39.
341. Seale C. Quality in Qualitative Research. Qualitative Inquiry 1999;5(4):465-78.
342. Ahmed DAA, Hundt GL, Blackburn C. Issues of gender, reflexivity and positionality in the field of disability: Researching visual impairment in an Arab society. Qualitative Social Work 2010;10(4):467-84.

343. Berger R. Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. Qualitative Research 2015;15(2):219-34.
344. Solbue V. In search of my hidden preconceptions as a researcher. Reflective Practice 2011;12(6):817-27.
345. Malterud K. Reflexivity and metapositions: strategies for appraisal of clinical evidence. J. Eval. Clin. Pract. 2002;8(2):121-26.
346. Maple M, Pearce T, Sanford R, Cerel J, Castelli Dransart DA, Andriessen K. A systematic mapping of suicide bereavement and postvention research and a proposed strategic research agenda. Crisis 2017:1-8.
347. Neimeyer RA, Baldwin SA, Gillies J. Continuing bonds and reconstructing meaning: mitigating complications in bereavement. Death Stud. 2006;30(8):715-38.
348. Sutton J, Austin Z. Qualitative research: Data collection, analysis, and management. The Canadian Journal of Hospital Pharmacy 2015;68(3):226-31.
349. Anderson C. Presenting and evaluating qualitative research. Am. J. Pharm. Educ. 2010;74(8):141.
350. Galdas P. Revisiting bias in qualitative research. International Journal of Qualitative Methods 2017;16:1-2.
351. All Ireland Traveller Health Study Team. All Ireland Traveller health study: Summary of findings. Dublin, Ireland, 2010.
352. Boelen PA, Prigerson HG. The influence of symptoms of prolonged grief disorder, depression, and anxiety on quality of life among bereaved adults. Eur. Arch. Psychiatry Clin. Neurosci. 2007;257(8):444-52.
353. Bolton JM, Au W, Chateau D, et al. Bereavement after sibling death: a population-based longitudinal case-control study. World psychiatry : official journal of the World Psychiatric Association (WPA) 2016;15(1):59-66.
354. Brent DA, Moritz G, Bridge J, Perper J, Canobbio R. The impact of adolescent suicide on siblings and parents: a longitudinal follow-up. Suicide Life Threat. Behav. 1996;26(3):253-9.
355. Brent DA, Melhem NM, Masten AS, Porta G, Payne MW. Longitudinal effects of parental bereavement on adolescent developmental competence. J. Clin. Child Adolesc. Psychol. 2012;41(6):778-91.
356. Bron B, Strack M, Rudolph G. Childhood experiences of loss and suicide attempts: significance in depressive states of major depressed and dysthymic or adjustment disordered patients. J. Affect. Disord. 1991;23(4):165-72.
357. Byrne GJ, Raphael B. The psychological symptoms of conjugal bereavement in elderly men over the first 13 months. Int. J. Geriatr. Psychiatry 1997;12(2):241-51.
358. Cerel J, Fristad MA, Weller EB, Weller RA. Suicide-bereaved children and adolescents: II. Parental and family functioning. J. Am. Acad. Child Adolesc. Psychiatry 2000;39(4):437-44.
359. Cerel J, Maple M, Aldrich R, van de Venne J. Exposure to suicide and identification as survivor. Results from a random-digit dial survey. Crisis: Journal of Crisis Intervention & Suicide 2013;34(6):413-9.
360. Chen JH, Bierhals AJ, Prigerson HG, Kasl SV, Mazure CM, Jacobs S. Gender differences in the effects of bereavement-related psychological distress in health outcomes. Psychol. Med. 1999;29(02):367-80.
361. Clarke CS, Wrigley M. Suicide-related bereavement and psychiatric morbidity in the elderly. Ir. J. Psychol. Med. 2014;21(1):22-24.

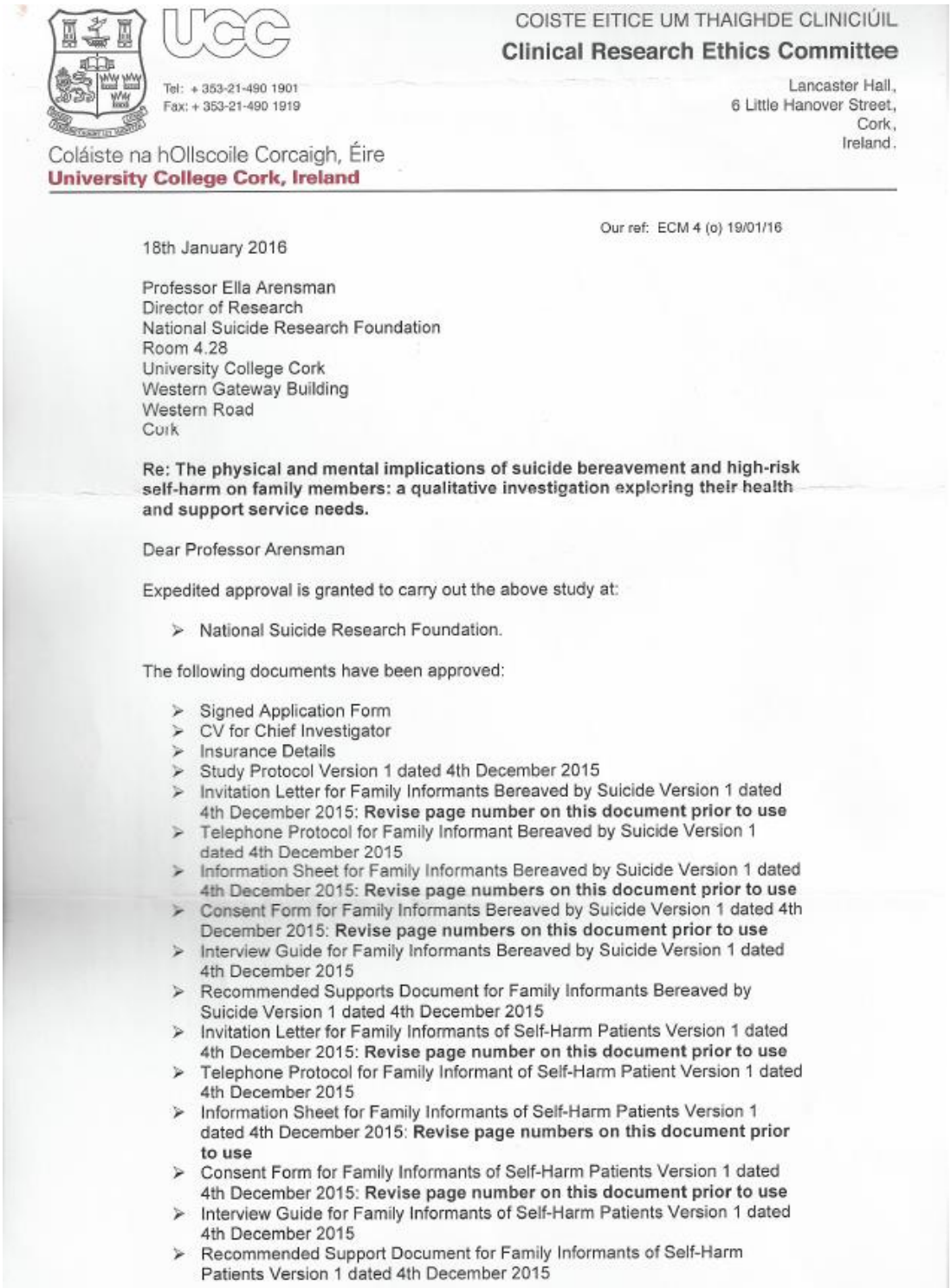
362. Cleiren MP, Grad O, Zavasnik A, Diekstra RF. Psychosocial impact of bereavement after suicide and fatal traffic accident: a comparative two-country study. Acta Psychiatr. Scand. 1996;94(1):37-44.
363. Cho J, Jung SH, Kim C, et al. Suicide loss, changes in medical care utilization, and hospitalization for cardiovascular disease and diabetes mellitus. Eur. Heart J. 2016;37(9):764-70.
364. Erlangsen A, Jeune B, Bille-Brahe U, Vaupel JW. Loss of partner and suicide risks among oldest old: a population-based register study. Age Ageing 2004;33(4):378-83.
365. Floyd FJ, Mailick Seltzer M, Greenberg JS, Song J. Parental bereavement during mid-to-later life: pre- to postbereavement functioning and intrapersonal resources for coping. Psychol. Aging 2013;28(2):402-13.
366. Hamdan S, Mazariegos D, Melhem NM, Porta G, Payne MW, Brent DA. Effect of parental bereavement on health risk behaviors in youth: a 3-year follow-up. Arch. Pediatr. Adolesc. Med. 2012;166(3):216-23.
367. Hamdan S, Melhem NM, Porta G, Song MS, Brent DA. Alcohol and substance abuse in parentally bereaved youth. J. Clin. Psychiatry 2013;74(8):828-33.
368. Harrington R, Harrison L. Unproven assumptions about the impact of bereavement on children. J. R. Soc. Med. 1999;92(5):230-3.
369. Kovarsky RS. Loneliness and disturbed grief: a comparison of parents who lost a child to suicide or accidental death. Arch. Psychiatr. Nurs. 1989;3(2):86-96.
370. Levav I, Kohn R, Iscovich J, Abramson JH, Tsai WY, Vigdorovich D. Cancer incidence and survival following bereavement. Am. J. Public Health 2000;90(10):1601-7.
371. Kvikstad A, Vatten LJ. Risk and prognosis of cancer in middle-aged women who have experienced the death of a child. Int. J. Cancer 1996;67(2):165-9.
372. Li J, Laursen TM, Precht DH, Olsen J, Mortensen PB. Hospitalization for mental illness among parents after the death of a child. N. Engl. J. Med. 2005;352(12):1190-6.
373. Li J, Johansen C, Bronnum-Hansen H, Stenager E, Koch-Henriksen N, Olsen J. The risk of multiple sclerosis in bereaved parents: A nationwide cohort study in Denmark. Neurology 2004;62(5):726-9.
374. Lohan JA, A. MS. Bereaved mothers' marital status and family functioning after a child's sudden, violent death: A preliminary study. Journal of Loss & Trauma 2007;12(4):333-47.
375. McIntosh J, Kelly LD. Survivors' reactions: suicide vs. other causes. Crisis 1992;13(2):82-93.
376. Melhem NM, Moritz G, Walker M, Shear MK, Brent D. Phenomenology and correlates of complicated grief in children and adolescents. J. Am. Acad. Child Adolesc. Psychiatry 2007;46(4):493-9.
377. Melhem NM, Porta G, Shamseddeen W, Walker Payne M, Brent DA. Grief in children and adolescents bereaved by sudden parental death. Arch. Gen. Psychiatry 2011;68(9):911-9.
378. Mitchell AM, Sakraida TJ, Kim Y, Bullian L, Chiappetta L. Depression, anxiety and quality of life in suicide survivors: A comparison of close and distant relationships. Arch. Psychiatr. Nurs. 2009;23(1):2-10.
379. Muniz-Cohen M, Melhem NM, Brent DA. Health risk behaviors in parentally bereaved youth. Arch. Pediatr. Adolesc. Med. 2010;164(7):621-4.

380. Murphy SA. A bereavement intervention for parents following the sudden, violent deaths of their 12-28-year-old children: description and applications to clinical practice. Can. J. Nurs. Res. 1997;29(4):51-72.
381. Murphy SA, Lohan J, Braun T, Johnson LC, Cain KC, Beaton RD. Parents' health, health care utilization, and health behaviors following the violent deaths of their 12- to 28-year-old children: a prospective longitudinal analysis. Death Stud. 1999;23(7):589-616.
382. Murphy SA, Braun T, Tillery L, Cain KC, Johnson LC, Beaton RD. PTSD among bereaved parents following the violent deaths of their 12 to 28-year-old children: A longitudinal prospective analysis. J. Trauma. Stress 1999;12(2):273-91.
383. Murphy SA, Clark Johnson L, Wu L, Fan JJ, Lohan J. Bereaved parents' outcomes 4 to 60 months after their children's deaths by accident, suicide, or homicide: A comparative study demonstrating differences. Death Stud. 2003;27(1):39-61.
384. Murphy SA, Johnson C, Lohan J. The effectiveness of coping resources and strategies used by bereaved parents 1 and 5 years after the violent deaths of their children. OMEGA - Journal of Death and Dying 2003;47(1):25-44.
385. Murphy SA, Tapper VJ, Johnson LC, Lohan J. Suicide ideation among parents bereaved by the violent deaths of their children. Issues Ment. Health Nurs. 2003;24(1):5-25.
386. Prigerson HG, Bierhals AJ, Kasl SV, et al. Traumatic grief as a risk factor for mental and physical morbidity. The American Journal Of Psychiatry 1997;154(5):616-23.
387. Qin P, Mortensen PB. The impact of parental status on the risk of completed suicide. Arch. Gen. Psychiatry 2003;60(8):797-802.
388. Range LM, Calhoun LG. Responses following suicide and other types of death: The perspective of the bereaved. OMEGA - Journal of Death and Dying 1990;21(4):311-20.
389. Rostila M, Saarela J, Kawachi I. The forgotten griever: A nationwide follow-up study of mortality subsequent to the death of a sibling. Am. J. Epidemiol. 2012;176(4):338-46.
390. Rostila M, Saarela J, Kawachi I, Hjern A. Testing the anniversary reaction: causal effects of bereavement in a nationwide follow-up study from Sweden. Eur. J. Epidemiol. 2015;30(3):239-47.
391. Rubenowitz E, Waern M, Wilhelmson K, Allebeck P. Life events and psychosocial factors in elderly suicides – a case–control study. Psychol. Med. 2001;31(7):1193-202.
392. Saarinen PI, Hintikka J, Viinamaki H, Lehtonen J, Lonnqvist J. Is it possible to adapt to the suicide of a close individual? Results of a 10-year prospective follow-up study. Int. J. Soc. Psychiatry 2000;46(3):182-90.
393. Segal NL. Suicidal behaviors in surviving monozygotic and dizygotic co-twins: Is the nature of the co-twin's cause of death a factor? Suicide Life Threat. Behav. 2009;39(6):569-75.
394. Séguin M, Lesage A, Kiely M. History of early loss among a group of suicide survivors. Crisis 1995;16(3):121-25.
395. Sorensen HJ, Mortensen EL, Wang AG, Juel K, Silverton L, Mednick SA. Suicide and mental illness in parents and risk of suicide in offspring: a birth cohort study. Soc. Psychiatry Psychiatr. Epidemiol. 2009;44(9):748-51.

396. Wolchik SA, Tein JY, Sandler IN, Ayers TS. Stressors, quality of the child-caregiver relationship, and children's mental health problems after parental death: the mediating role of self-system beliefs. J. Abnorm. Child Psychol. 2006;34(2):221-38.
397. Zetumer S, Young I, Shear MK, et al. The impact of losing a child on the clinical presentation of complicated grief. J. Affect. Disord. 2015;170:15-21.
398. Zisook S, Lyons L. Bereavement and unresolved grief in psychiatric outpatients. OMEGA - Journal of Death and Dying 1990;20(4):307-22.
399. Zisook S, Shuchter SR. Uncomplicated bereavement. J. Clin. Psychiatry 1993;54(10):365-72.

Appendices

Appendix 1: Ethical approval for empirical studies



UCC
Tel: + 353-21-490 1901
Fax: + 353-21-490 1919
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

COISTE EITICE UM THAIGHDE CLINICIÚIL
Clinical Research Ethics Committee
Lancaster Hall,
6 Little Hanover Street,
Cork,
Ireland.

Our ref: ECM 4 (o) 19/01/16

18th January 2016

Professor Ella Arensman
Director of Research
National Suicide Research Foundation
Room 4.28
University College Cork
Western Gateway Building
Western Road
Cork

Re: The physical and mental implications of suicide bereavement and high-risk self-harm on family members: a qualitative investigation exploring their health and support service needs.

Dear Professor Arensman

Expedited approval is granted to carry out the above study at:

- National Suicide Research Foundation.

The following documents have been approved:

- Signed Application Form
- CV for Chief Investigator
- Insurance Details
- Study Protocol Version 1 dated 4th December 2015
- Invitation Letter for Family Informants Bereaved by Suicide Version 1 dated 4th December 2015: **Revise page number on this document prior to use**
- Telephone Protocol for Family Informant Bereaved by Suicide Version 1 dated 4th December 2015
- Information Sheet for Family Informants Bereaved by Suicide Version 1 dated 4th December 2015: **Revise page numbers on this document prior to use**
- Consent Form for Family Informants Bereaved by Suicide Version 1 dated 4th December 2015: **Revise page numbers on this document prior to use**
- Interview Guide for Family Informants Bereaved by Suicide Version 1 dated 4th December 2015
- Recommended Supports Document for Family Informants Bereaved by Suicide Version 1 dated 4th December 2015
- Invitation Letter for Family Informants of Self-Harm Patients Version 1 dated 4th December 2015: **Revise page number on this document prior to use**
- Telephone Protocol for Family Informant of Self-Harm Patient Version 1 dated 4th December 2015
- Information Sheet for Family Informants of Self-Harm Patients Version 1 dated 4th December 2015: **Revise page numbers on this document prior to use**
- Consent Form for Family Informants of Self-Harm Patients Version 1 dated 4th December 2015: **Revise page number on this document prior to use**
- Interview Guide for Family Informants of Self-Harm Patients Version 1 dated 4th December 2015
- Recommended Support Document for Family Informants of Self-Harm Patients Version 1 dated 4th December 2015

UCC
Tel: + 353-21-490 1901
Fax: + 353-21-490 1919
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

COISTE EITICE UM THAIGHDE CLINICIÚIL
Clinical Research Ethics Committee
Lancaster Hall,
6 Little Hanover Street,
Cork,
Ireland.

- Consent for Re-Contacting Participants Version 1 dated 4th December 2015.

We note that the co-investigators involved in this study wil be:

- Dr Paul Corcoran, Lecturer, Dr Celine Larkin, Lecturer and Ms Ailbhe Spillane, PhD Student.

Yours sincerely

Professor Michael G Molloy
Chairman
Clinical Research Ethics Committee
of the Cork Teaching Hospitals

The Clinical Research Ethics Committee of the Cork Teaching Hospitals, UCC, is a recognised Ethics Committee under Regulation 7 of the European Communities (Clinical Trials on Medicinal Products for Human Use) Regulations 2004, and is authorised by the Department of Health and Children to carry out the ethical review of clinical trials of investigational medicinal products. The Committee is fully compliant with the Regulations as they relate to Ethics Committees and the conditions and principles of Good Clinical Practice.

UCC
Tel: + 353-21-490 1901
Fax: + 353-21-490 1919
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

COISTE EITICE UM THAIGHDE CLINICIÚIL
Clinical Research Ethics Committee
Lancaster Hall,
6 Little Hanover Street,
Cork,
Ireland.

Our ref: ECM 4 (o) 19/01/16 & ECM 3 (jj) 09/08/16

28th July 2016

Professor Ella Arensman
Director of Research
National Suicide Research Foundation
Room 4.28
University College Cork
Western Gateway Building
Western Road
Cork

Re: The physical and mental implications of suicide bereavement and high-risk self-harm on family members: a qualitative investigation exploring their health and support service needs.

Dear Professor Arensman

The Chairman approved the following:

- Cover Letter dated 19th July 2016
- Amendment Application Form signed 19th July 2016
- Study Protocol (incorporating information leaflets, consent forms and interview schedules) Version 2 dated 19th July 2016.

Yours sincerely

Professor Michael G Molloy
Chairman
Clinical Research Ethics Committee
of the Cork Teaching Hospitals

The Clinical Research Ethics Committee of the Cork Teaching Hospitals, UCC, is a recognised Ethics Committee under Regulation 7 of the European Communities (Clinical Trials on Medicinal Products for Human Use) Regulations 2004, and is authorised by the Department of Health and Children to carry out the ethical review of clinical trials of investigational medicinal products. The Committee is fully compliant with the Regulations as they relate to Ethics Committees and the conditions and principles of Good Clinical Practice.

Appendix 2: Completed PRISMA checklist

Table 11: Completed PRISMA checklist for Study 1

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	5-6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6-7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	6, 37
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	8-9

Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7-8
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	NA
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	NA
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	10-11
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	NA
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	8-9
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	9-10
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	10-11
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	NA
Synthesis of results	21	Present the main results of the review. If meta-analyses are done, include for each, confidence intervals and measures of consistency.	12-18
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	12-18

Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	18-20
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	20-22
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	22-23
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	23

Appendix 3: Search Strategies for Study 1

Table 12: Search strategy: Medline, Platform: OVID (n = 2,409)

1. exp Suicide/
2. suicid*.mp.
3. 1 or 2
4. exp Bereavement/
5. bereav*.mp.
6. grief.mp.
7. griev*.mp.
8. 4 or 5 or 6 or 7
9. exp Family/
10. family.mp.
11. exp Friends/
12. friend.mp.
13. (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*).mp
14. Survivors/
15. Survivor*.mp.
16. 9 or 10 or 11 or 12 or 13 or 14 or 15
17. 3 and 8
18. exp Genetic Predisposition to Disease/
19. exp Family Characteristics/
20. familial.mp.
21. family history.mp.
22. genetic predisposition.mp.
23. 18 or 19 or 20 or 21 or 22
24. 3 and 23
25. 17 or 24
26. 16 and 25
27. exp Suicide/
28. suicid*.mp.
29. 1 or 2
30. exp Bereavement/
31. bereav*.mp.
32. grief.mp.
33. griev*.mp.
34. 4 or 5 or 6 or 7
35. exp Family/

36. family.mp.
37. exp Friends/
38. friend.mp.
39. (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*).mp
40. Survivors/

Table 13: Search strategy: EMBASE, Platform: Elsevier (n = 1,868)

1. ‘suicide’/exp
2. suicid*
3. #1 OR #2
4. ‘bereavement’/exp
5. bereav*
6. grief
7. griev*
8. #4 OR #5 OR #6 OR #7
9. ‘family’/exp
10. Family
11. ‘friends’/exp
12. Friend
13. relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*
14. ‘survivors’/de
15. survivor*
16. #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15
17. #3 AND #8
18. ‘genetic predisposition’/exp
19. ‘family size’/exp
20. familial
21. ‘family history’
22. ‘genetic predisposition’
23. #18 OR #19 OR #20 OR #21 OR #22
24. #3 AND #23
25. #17 OR #24
26. #16 AND #25

Table 14: Search strategy: PsycINFO, Platform: EBSCO (n = 1,750)

1. DE “Suicide”
2. SU suicid* OR TI suicid* OR AB suicid*
3. 1 OR 2
4. DE “Bereavement” OR DE “Grief”
5. SU bereav* OR TI bereav* OR AB bereav*
6. SU grief OR TI grief OR AB grief
7. SU griev* OR TI griev* OR AB griev*
8. 4 OR 5 OR 6 OR 7
9. DE “Family” OR DE “Biological Family” OR DE “Extended Family” OR DE “Family of Origin” OR DE “Interethnic Family” OR DE “Interracial Family” OR DE “Military Families” OR DE “Nuclear Family” OR DE “Schizophrenogenic Family” OR DE “Stepfamily”
10. SU family OR TI family OR AB family
11. SU friend* OR TI friend* OR AB friend*
12. SU (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR TI (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR AB (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*)
13. DE “Survivors”
14. SU survivor* OR TI survivor* OR AB survivor*
15. 9 OR 10 OR 11 OR 12 OR 13 OR 14
16. 3 AND 8
17. SU genetic predisposition to disease OR TI genetic predisposition to disease OR AB genetic predisposition to disease
18. SU family characteristics OR TI family characteristics OR AB family characteristics
19. SU familial OR TI familial OR AB familial
20. SU family history OR TI family history OR AB family history
21. 17 OR 18 OR 19 OR 20
22. 3 AND 21
23. 16 AND 23
24. 15 AND 23
25. DE “Suicide”
26. SU suicid* OR TI suicid* OR AB suicid*
27. 1 OR 2
28. DE “Bereavement” OR DE “Grief”
29. SU bereav* OR TI bereav* OR AB bereav*

30. SU grief OR TI grief OR AB grief
31. SU griev* OR TI griev* OR AB griev*
32. 4 OR 5 OR 6 OR 7
33. DE “Family” OR DE “Biological Family” OR DE “Extended Family” OR DE “Family of Origin” OR DE “Interethnic Family” OR DE “Interracial Family” OR DE “Military Families” OR DE “Nuclear Family” OR DE “Schizophrenogenic Family” OR DE “Stepfamily”
34. SU family OR TI family OR AB family
35. SU friend* OR TI friend* OR AB friend*
36. SU (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR TI (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR AB (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*)
37. DE “Survivors”
38. SU survivor* OR TI survivor* OR AB survivor*
39. 9 OR 10 OR 11 OR 12 OR 13 OR 14
40. 3 AND 8

Table 15: Search strategy: CINAHL, Platform: EBSCO (n = 932)

1. (MH “Suicide+”)
2. SU suicid* OR TI suicid* OR AB suicid*
3. 1 OR 2
4. (MH “Bereavement+”)
5. SU bereav* OR TI bereav* OR AB bereav*
6. SU grief OR TI grief OR AB grief
7. SU griev* OR TI griev* OR AB griev*
8. 4 OR 5 OR 6 OR 7
9. (MH “Family+”)
10. SU family OR TI family OR AB family
11. SU friend* OR TI friend* OR AB friend*
12. SU (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR TI (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR AB (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*)
13. (MH “Survivors”)
14. SU survivor* OR TI survivor* OR AB survivor*
15. 9 OR 10 OR 11 OR 12 OR 13 OR 14
16. 3 AND 8
17. SU genetic predisposition to disease OR TI genetic predisposition to disease OR AB genetic predisposition to disease
18. (MH “Family Characteristics+”)
19. SU familial OR TI familial OR AB familial
20. SU family history OR TI family history OR AB family history
21. 17 OR 18 OR 19 OR 20
22. 3 AND 21
23. 16 AND 22
24. 15 AND 23
25. (MH “Suicide+”)
26. SU suicid* OR TI suicid* OR AB suicid*
27. 1 OR 2
28. (MH “Bereavement+”)
29. SU bereav* OR TI bereav* OR AB bereav*
30. SU grief OR TI grief OR AB grief
31. SU griev* OR TI griev* OR AB griev*
32. 4 OR 5 OR 6 OR 7
33. (MH “Family+”)

34. SU family OR TI family OR AB family
35. SU friend* OR TI friend* OR AB friend*
36. SU (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR TI (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*) OR AB (relative* or parent* or mother* or father* or sibling* or offspring* or child* or brother* or sister*)
37. (MH “Survivors”)
38. SU survivor* OR TI survivor* OR AB survivor*
39. 9 OR 10 OR 11 OR 12 OR 13 OR 14
40. 3 AND 8
41. SU genetic predisposition to disease OR TI genetic predisposition to disease OR AB genetic predisposition to disease

Appendix 4: List of excluded studies for Study 1

Table 16: List of excluded studies for Study 1

Study ID	Reason for Exclusion
Agerbo et al [38]	Use of non-bereaved controls; not outcome of interest
Boelen et al [352]	Not exposure of interest
Bolton et al [353]	Results not presented separately for mode of death
Brent et al [354]	Use of non-bereaved controls; not outcome of interest
Brent et al [133]	Use of non-bereaved controls; not outcome of interest
Brent et al [84]	No comparison group; not outcome of interest
Brent et al [355]	Use of non-bereaved controls; not outcome of interest
Brent et al [175]	Not exposure of interest; not outcome of interest
Bron et al [356]	Not outcome of interest
Byrne and Raphael [357]	Use of non-bereaved controls; not exposure of interest
Cerel et al [358]	Not outcome of interest
Cerel et al [359]	No comparison group; not outcome of interest
Chen et al [360]	Not exposure of interest
Clarke and Wrigley [361]	Use of non-bereaved controls
Cleiren et al [362]	Not outcome of interest
Cho et al [363]	Use of non-bereaved controls
De Groot et al [173]	Not outcome of interest
Dyregrov and Dyregrov [30]	No comparison group
Erlangsen et al [364]	Not exposure of interest; not outcome of interest
Feigelman et al [259]	Not outcome of interest
Feigelman et al [247]	Not outcome of interest
Floyd et al [365]	Use of non-bereaved controls; not outcome of interest
Hamdan et al [366]	No comparison group; not outcome of interest
Hamdan et al [367]	No comparison group; not outcome of interest
Harrington et al [368]	Narrative review; not exposure of interest; not

	population of interest
Kovarsky [369]	Not outcome of interest
Levav et al [370]	Not exposure of interest
Kvikstad et al [371]	Results not presented separately for mode of death
Li et al [372]	Not exposure of interest; not outcome of interest
Li et al [373]	Results not presented separately for mode of death
Lohan and Murphy [374]	Not exposure of interest; not outcome of interest
McIntosh and Kelly [375]	Not outcome of interest
Melhem et al [376]	Not outcome of interest
Melhem et al [85]	Not outcome of interest
Melhem et al [377]	Not outcome of interest
Mitchell et al [378]	No comparison group
Mittendorfer-Rutz et al [29]	Use of non-bereaved controls; not exposure of interest
Muniz-Cohen et al [379]	Use of non-bereaved controls; not outcome of interest
Murphy et al [380]	Randomised Controlled Trial
Murphy et al [381]	Results not presented separately for mode of death
Murphy et al [382]	Results not presented separately for mode of death
Murphy et al [383]	Not outcome of interest
Murphy et al [384]	Results not presented separately for mode of death
Murphy et al [385]	Not outcome of interest
Murphy et al [255]	Randomised Controlled Trial
Pitman et al [28]	Not outcome of interest
Prigerson et al [386]	Not exposure of interest
Qin et al [387]	Not exposure or outcome of interest; use of non-bereaved controls
Range et al [388]	Not outcome of interest
Rostila et al [389]	Not outcome of interest
Rostila et al [390]	Not outcome of interest
Rubenowitz et al [391]	Use of non-bereaved controls

Saarinen et al [392]	No comparison group
Ségal [393]	Not outcome of interest
Séguin et al [394]	Not outcome of interest
Sorensen et al [395]	Not outcome of interest
Wolchik et al [396]	Not outcome of interest
Zetamer et al [397]	Not outcome of interest
Zisook and Lyons [398]	Results not presented separately for mode of death
Zisook and Shuchter [399]	Results not presented separately for mode of death

Appendix 5: COREQ checklists for qualitative components of thesis

Table 17: COREQ checklist for Study 2

No. Item	Guide questions/description	Reported on Page # of published paper(s)
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	6 (in protocol)
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	6 (in protocol)
3. Occupation	What was their occupation at the time of the study?	6 (in protocol)
4. Gender	Was the researcher male or female?	6 (in protocol)
5. Experience and training	What experience or training did the researcher have?	6 (in protocol)
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	3 (in protocol)
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	4 (in protocol)
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	6 (in protocol)
Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	3 (in protocol)
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	5-6

11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	5
12. Sample size	How many participants were in the study?	5-6
13. Non-participation	How many people refused to participate or dropped out? Reasons?	6
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	7
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	3 (in protocol)
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	8
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	5 (in protocol)
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	5
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	5
20. Field notes	Were field notes made during and/or after the interview or focus group?	4
21. Duration	What was the duration of the inter views or focus group?	7
22. Data saturation	Was data saturation discussed?	6 (in protocol)
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	6 (in protocol)
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	8
25. Description of the coding tree	Did authors provide a description of the coding tree?	9-16
26. Derivation of themes	Were themes identified in advance or derived from the data?	5-6 (in protocol), 8
27. Software	What software, if applicable, was used to manage the data?	8

28. Participant checking	Did participants provide feedback on the findings?	6 (in protocol)
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	9-16
30. Data and findings consistent	Was there consistency between the data presented and the findings?	20-21
31. Clarity of major themes	Were major themes clearly presented in the findings?	9-16
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	9-16

Table 18: COREQ checklist for Study 3

No. Item	Guide questions/description	Reported on Page # of thesis document
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	176
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	176
3. Occupation	What was their occupation at the time of the study?	176
4. Gender	Was the researcher male or female?	176
5. Experience and training	What experience or training did the researcher have?	176
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	176
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	176-177
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	176-177
Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	174-175
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	175-176
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	175-176

12. Sample size	How many participants were in the study?	175-176
13. Non-participation	How many people refused to participate or dropped out? Reasons?	175-176
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	176
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	176
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	175-176
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	177
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	177
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	178
20. Field notes	Were field notes made during and/or after the interview or focus group?	178
21. Duration	What was the duration of the inter views or focus group?	177
22. Data saturation	Was data saturation discussed?	178
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	N/A
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	178
25. Description of the coding tree	Did authors provide a description of the coding tree?	178
26. Derivation of themes	Were themes identified in advance or derived from the data?	178
27. Software	What software, if applicable, was used to manage the data?	178
28. Participant checking	Did participants provide feedback on the findings?	N/A

Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	180-190
30. Data and findings consistent	Was there consistency between the data presented and the findings?	180-190
31. Clarity of major themes	Were major themes clearly presented in the findings?	180-190
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	180-190

Table 19: COREQ checklist for Study 4

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	201
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	201
3. Occupation	What was their occupation at the time of the study?	201
4. Gender	Was the researcher male or female?	201
5. Experience and training	What experience or training did the researcher have?	201
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	201
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	201
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	201
Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	201-202
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	199-201
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	199-201
12. Sample size	How many participants were in the study?	199-201
13. Non-participation	How many people refused to participate or dropped out? Reasons?	199-201

Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	201
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	201
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	203-204
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Appendix 6
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	N/A
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	202
20. Field notes	Were field notes made during and/or after the interview or focus group?	201
21. Duration	What was the duration of the interviews or focus group?	203
22. Data saturation	Was data saturation discussed?	201-202
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	N/A
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	202
25. Description of the coding tree	Did authors provide a description of the coding tree?	202, 204
26. Derivation of themes	Were themes identified in advance or derived from the data?	202-204
27. Software	What software, if applicable, was used to manage the data?	201
28. Participant checking	Did participants provide feedback on the findings?	N/A
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	205-223
30. Data and findings consistent	Was there consistency between the data presented and the findings?	205-223

31. Clarity of major themes	Were major themes clearly presented in the findings?	205-223
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	205-223

Appendix 6: Topic guide for Study 4

Table 20: Topic guide for people experiencing a family member's high-risk self-harm

Introduction	**Prompts**
Can you talk to me about your relationship with [name of family member]?	-How do you spend time together? -What's that like for you?
The self-harm act	
Can you tell me about what happened when [name of family member] harmed him/herself?	-What was going on at the time? -What did he/she do? -How did you find out -How did you feel when you found out?
The impact of the self-harm act on you	
How did you feel physically in the immediate aftermath of [name of family member's] self-harm act?	
How was your physical health before [name of family member's] self-harm act?	-Presence of or new diagnosis of health condition -Worsening of existing health conditions -Changes in diet, exercise, sleeping patterns and substance use
How has your physical health been after [name of family member's] self-harm act?	-Presence of or new diagnosis of health condition -Worsening of existing health conditions -Changes in diet, exercise, sleeping patterns and substance use
How was your mental health before [name of family member's] self-harm act?	-Feelings of stress or worry -New diagnosis of health condition -Worsening of existing health conditions
How has your mental health been after [name of family member's] self-harm act?	-Feelings of stress or worry -New diagnosis of health condition -Worsening of existing health conditions

How has your sense of wellbeing been since [name of family member's] self-harm act?	-Experiencing negative thoughts -Experiencing positive thoughts -Optimism regarding the future
The familial and social impact of your family member harming themselves	
How do you think [name of family member's] self-harm act has affected your life?	-Social/work life -Outlook on life
Can you tell me how [name of family member's] self-harm act has affected your family?	-Changes in familial relationships
Have any physical illnesses you have experienced after [name of family member's] self-harm act affected your social/work life?	
Support services	
Can you tell me what supports you have received from family and friends following [name of family member's] self-harm act?	-Did your family/friends know about the self-harm? -How did they respond?
Can you talk to me about any support services that you have found helpful/unhelpful? What made them helpful/unhelpful?	
Is there any particular support service that you would like to see in the *immediate after*math of a family member coming to hospital following a self-harm act?	
Is there any particular support service that you would like to see in the *medium to long term* following a family member coming to hospital following a self-harm act?	
Do you have a message to: - Healthcare professionals? - Mental health services or counsellors? - Others who have had a relative attempt suicide? - People contemplating suicide?	
Is there anything you would like to add before we conclude the interview?	

Appendix 7: Supporting material from Study 4

Supplementary data analysis material for Chapter 7 (Study 4)

Table 21: Participant contribution to superordinate theme 'Implications for health and wellbeing'

Participant	Transcript Cross Reference
1	128, 131, 135, 140, 180, 181, 183, 190, 193, 194, 195, 200, 207
2	217-223, 225-236, 239-242, 286-307
4	72, 79, 83-88, 121-131, 133-138, 165-170
5	177-180, 185-186, 285-291, 296-303, 498-501
6	96-110, 154-165, 256-272, 279-288, 458-466, 467-480, 577-580
7	223-226, 236-243, 283, 303, 323-336, 338-350, 358-365, 408-416, 440-446, 450-457, 465-475, 525
8	204-249, 254-255, 482-494, 498-507, 528-529, 538-543, 749-758, 761, 763, 904-924, 927-965, 1164-1167
9	113-130, 184-186, 188-195, 296-310, 313-325, 326, 327, 449-456, 649-657

Table 22: Participant contribution to superordinate theme 'Process of meaning-making'

Participant	Transcript Cross Reference
1	13-18, 42-51, 65-86, 75-91, 124-133, 141-166
2	40-44, 46-51, 148-155, 165, 251-257, 260-270, 415-425, 462-465
3	31-35, 65-95, 97-101, 103-127, 129-141, 148-158, 162-182, 186-194, 208-219, 221-243, 262-270, 322-325, 393-401, 403-405
4	20-32, 61-66, 111-116, 140-157, 159-162, 183-186
6	39-44, 46-51, 60-71, 90-93, 102-110, 118-121, 362-370, 378-392, 399-405, 586-600, 713-717, 815-823
7	13-27, 33-35, 42-49, 114-123, 128-130, 179-192, 307-310, 323-350, 344-350, 358-366, 449-464, 477-479
8	84-92, 155-160, 204-249, 336-344, 389-398, 1146-1154, 1234-1258, 1261-1275, 1277-1293, 1302-1312
9	35-43, 56-67, 69-81, 99-102, 113-122, 138-140, 149-152, 154-157, 256-261, 553-560, 779-790, 846-850, 874-877

Table 23: Participant contribution to superordinate theme 'Feelings of responsibility'

Participant	Transcript Cross Reference
1	53-57, 75-77, 170-181, 196-219, 212-233, 269-277, 279-286, 288-290, 309-319
2	219-223, 225-236, 237-242, 245-257
4	3-6, 9-10, 20-25, 27-32, 47-50, 75-96, 103-104, 124-135, 274-275
6	243-254, 415-426, 439-448, 458-460, 464-472, 563-572
7	126-130, 223-243, 315-350, 352-354, 358-366, 426-442, 450-464, 466-475, 484-496, 502-507
8	56-74, 204-249, 336-367, 389-398, 400-451, 464-494, 517-543, 631-669, 714-724, 728-758, 739-746, 749-782, 788-814, 1146-1160, 1261-1275, 1315-1343
9	83-88, 144-159, 184-192, 193-195, 226-239, 313-327, 340-348, 459-465, 544-548, 550-567, 752-762

Table 24: Participant contribution to superordinate theme 'Challenges with support network'

Participant	Transcript Cross Reference
1	253-264, 265-277, 279-290, 300-307, 309-329, 336-332, 399-402, 407-411
2	143-146, 462-474, 477-493, 498-510, 512-530, 532-542
3	37-44, 45-51, 166, 196-205, 212-236, 236-251, 282-316, 330-362
4	103-104, 210-219, 294-302, 316-335, 336-343, 347-355, 358-376
5	339-344, 346-358, 360-376, 378-386, 394-402, 450-463, 472-479, 580-581, 585-594, 689-717, 795-801, 823-829, 832-844, 928-931
6	157-167, 170-183, 173-185, 185-212, 292-319, 583-597, 604-607, 623-640, 648-652, 692-697, 699-704, 720-723, 734-758, 761-763, 765-774, 778-780
8	80-90, 204-226, 464-494, 1026-1077, 1107-1110, 1134-1158, 1197-1230, 1336-1358
9	56-67, 69-111, 141-160, 161-186, 321-327, 327-348, 405-410, 433-438, 449-456, 510-514, 525-541, 587-609, 734-749

Appendix 8: Research output, dissemination, training and contributions

Research from this thesis has been published in peer-reviewed academic journals (Table 25). The candidate has also contributed to other additional non-thesis related publications (Table 26). This research has also been presented at numerous national and international conferences (Table 27). The candidate has made significant contributions to the School of Public Health throughout the course of her doctoral studies (Table 28) and has also completed a number of academic courses and modules (Table 29). The results of this PhD have also received significant attention from media outlets across Ireland (Table 30).

Table 25: Publications from this thesis

Year	Reference for peer-reviewed publication
2017	**Spillane A,** Larkin C, Corcoran P, et al. Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: a systematic review. *BMC Public Health* 2017; 17:1
2017	**Spillane A,** Larkin C, Corcoran P, et al. What are the physical and psychological health effects of suicide bereavement on family members? Protocol for an observational and interview mixed methods study in Ireland. *BMJ Open* 2017; 7
2018	**Spillane A,** Matvienko-Sikar K, Larkin C, et al. What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed methods study in Ireland. *BMJ Open* 2018; 13; 8

2018	**Spillane A,** Matvienko-Sikar K, Larkin C, et al. To explore how suicide-bereaved family members experience the inquest process: A qualitative study. Accepted for publication in the *International Journey of Qualitative Studies in Health and Well-being*
2018	**Spillane A,** Matvienko-Sikar K, Larkin C, Arensman A. How do people experience a family member's high-risk self-harm? An interpretative phenomenological analysis. Under review with *Archives of Suicide Research*

Table 26: Additional non-thesis related publications

Year	Reference for peer-reviewed publication
2018	McTernan N, **Spillane A**, O'Regan G et al. Media reporting of suicide and adherence to media guidelines. *International Journal of Social Psychiatry* (In Press)

Table 27: Conference presentations during the PhD

Date	Conference	Title of presentation	Presentation type
10th September 2016	16th European Symposium on Suicide and Suicidal Behaviours, Oviedo, Spain	Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: A systematic review	Oral
28th September 2016	5th Annual Manchester Suicide Bereavement Conference, Manchester, England	Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of	Poster

		death: A systematic review	
10th November 2016	National Health Services Research Institute Research Day, Cork	Best practice in research addressing suicidal behaviour and other sensitive topics	Poster
8th December 2016	New Horizons Research Conference, Cork	Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: A systematic review	Poster
18th-22nd July 2017	29th World Congress of the International Association for Suicide Prevention (IASP), Borneo, Malaysia	The physical and psychological health effects of suicide bereavement on family members: A qualitative study	Oral
18th-22nd July 2017	29th World Congress of the International Association for Suicide Prevention (IASP) Borneo, Malaysia	Physical and psychosomatic health outcomes in people bereaved by suicide compared to people bereaved by other modes of death: A systematic review	Oral
6-8th September 2017	61st Society for Social Medicine Annual Scientific Meeting, Manchester, England	The physical and psychological health effects of suicide bereavement on family members: A qualitative study	Oral
7th December 2017	New Horizons Research Conference, Cork	What are the physical and psychological health effects of suicide bereavement on family members? A mixed-methods study	Poster
11th January 2018	4th Annual SPHeRE Conference, Dublin	What are the physical and psychological health effects of suicide bereavement on family members? A mixed-methods study	Poster

1-3rd May 2018	16th Qualitative Methods (QM) Conference, Banff, Canada	Overcoming methodological and ethical challenges in qualitative research involving vulnerable populations	Oral
21-25th August 2018	32nd Annual Conference of the European Health Psychology Society, Galway, Ireland	How do people experience a family member's highly lethal self-harm? A qualitative study	Poster
5-8th September 2018	17th European Symposium on Suicide and Suicidal Behaviour, Ghent, Belgium	How do people experience a family member's high risk self-harm? A qualitative study	Poster

Table 28: Contributions to the School of Public Health

Type of contribution	**Details of contribution**
Funding	• Awarded a travel bursary from the College of Medicine and Health in April 2017 to attend the 29th IASP conference in Borneo, Malaysia • Awarded a free place to attend and give an oral presentation at the 61st Society for Social Medicine Annual Scientific Meeting in Manchester, England, September 2017
BSc lecturing	Lectured BSc Public Health students for the academic years 2014-2015, 2015-2016, 2016-2017, 2017-2018
Tutoring	Tutored two BSc Public Health students for the academic years 2015-2016 and 2016-2017 on a number of subjects, including Epidemiology, Politics and Health, Nutrition and Health Economics
Lecturing	Lectured Health Information Systems (HIS) module for the

	academic years 2015-2016 and 2016-2017
Supervision	Co-supervised a Masters of Public Health student during her compulsory work placement during the academic year 2016-2017
Facilitation	Co-facilitated focus groups with secondary school students as part of research study for another PhD candidate in the School of Public Health, October 2016
Correcting	Marked third year BSc placement portfolios during academic year 2016-2017

Table 29: Courses and training completed during the PhD

Year	**Course**	**Facilitator**
2014	NVivo Qualitative Software, Day 1 and 2	Mr Ben Meehan
2014	PG7016 Systematic Reviews for the Health Sciences	Prof John Browne
2014	The Importance of Academic Feedback	Dr Amanda Slevin
2014	Presentation Skills	Irish Times representative
2015	Code of Good Practice in Research	Prof John Browne
2015	Introduction to Qualitative Research Methods: Oxford	Dr Jenny Hislop
2015-2016	PG6003 Teaching and Learning	Dr James Cronin
2016	What is Your Contribution?	Dr Sarah Barry
2016	Writing Skills	Prof Ivan Perry
2016	Research Troubleshooting	Prof Ruairi Brugha

2017	Getting Research into Policy	Dr Carlos Bruen
2017	Communicating your Research into Policy	Dr Carlos Bruen, Sara McAleese & Conor Keegan
2018	Evidence and Policy Making in a Political Context	Prof Paul Cairney
2018	Becoming a Research Leader in Population Health and Health-Services Research	Prof Patricia Kearney
2018	Grant Preparation and Writing	Dr Kathleen Bennett
2018	Dealing with the Media	Ms Amanda Dunleavy

Table 30: Media coverage of PhD output

Month/Year	Media outlet	Details
15th May 2018	Evening Echo (Newspaper)	*'Mental and physical health of people bereaved by suicide should be assessed, study finds'* Print media and online version: https://www.eveningecho.ie/nationalnews/Mental-and-physical-health-of-people-bereaved-by-suicide-should-be-assessed-study-finds-b9103f29-2db2-4109-aea5-c701344765ea-ds
16th May 2018	Irish Examiner (Newspaper)	*'Family members bereaved by suicide suffer health issues'* Print media and online version: https://www.irishexaminer.com/ireland/family-members-bereaved-by-suicide-suffer-health-issues-470693.html

16th May 2018	The Times (Newspaper)	*Relatives of suicide victims 'must be made HSE priority'* Print media and online version: https://www.thetimes.co.uk/article/relatives-of-suicide-victims-must-be-made-hse-priority-chjnw5dwz
16th May 2018	KCLR Live 96fm (Radio station)	Interview with radio station in Kilkenny and Carlow – KCLR Live programme Podcast available from: https://kclr96fm.com/kclr-live-wednesday-16th-may-2018-part-one/
17th May 2018	CRCfm (Radio station)	Interview with radio station in Mayo – Drivetime programme
21st May 2018	Nearfm (Radio station)	Interview with radio station in Dublin North East – Lifeline Programme Podcast available from:
28th May 2018	Nearfm (Radio station)	Interview with radio station in Dublin North East – Northside Today programme Podcast available from: http://nearfm.ie/podcast/?p=26874

Appendix 9: PDF versions of the three published studies