

**UNDERSTANDING THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD
EXPERIENCES (ACEs) AND DELIBERATE SELF HARM (DSH)**

By

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Abstract

There is an empirically established relationship between Adverse Childhood Experiences (ACEs) and deliberate self-harm (DSH) (Lui et al., 2019) and it is widely recognised that those with particular and an increased number of ACEs are at an elevated risk of engaging in self-harm (Russell et al., 2019). However, little is understood about the processes which underlie this relationship. The main purpose of this thesis was to further investigate the nature of the relationship between ACEs and DSH, and to acquire insight into variables which increase the likelihood of individuals with ACEs engaging in DSH.

More specifically, Chapter 2 aimed to review research findings in relation to risk factors for non-suicidal self-injury (NSSI) amongst populations who have ACEs. That is, the review focuses specifically on acts of self-injury, where suicidality is not the function of the behaviour. Potential risk factors which were identified included experiencing post-traumatic stress symptoms (PTSS), emotion dysregulation (ED) and dissociation. Limitations are noted and findings are discussed in relation to the clinical implications of this in terms of the treatment of NSSI.

Chapter 3 consists of a qualitative study which explored the experiences of hospitalised women with a history of childhood abuse, who have a history of repeated self-harm. Using Interpretative Phenomenological Analysis (IPA), the study aimed to gain an in-depth understanding of how six participants made sense of their self-harm. The study also explored factors which may make participants more likely to engage in self-harming behaviours. Three group experiential statements were identified: *Journey of self-harm*; *Reasons why I self-harm*, and *Relationships and self-harm*. Participants spoke about why they self-harm (e.g., to regulate emotions or to “feel something”) and their experiences of factors which made them less likely to self-harm (e.g., positive personal support). Clinical implications of the research were discussed, along with study limitations, and recommendations for future research.

Chapter 4 provides a critique of the Dissociative Experiences Scale (DES; Carlson & Putnam, 1986). Dissociation has been recognised as playing a role in the ACEs and self-harm

relationship (Franzke et al., 2015; Gomez, 2019). The DES-II was evaluated in terms of the reliability and validity of the scale, and the critique concluded that the DES (I and II) is a significant and robust tool in quantifying dissociation in a range of clinical populations. However, floor effects and skewed data have been recognised in the use of the DES in non-clinical populations.

Chapter 5 provides a summary of the aims and key findings from each chapter of the thesis. It also highlights overall strengths and limitations of the thesis, as discussed in each distinct chapter. Lastly, the chapter considers how the findings from the thesis have implications for practice, as well as gives suggestions for areas of future research.

Table of Contents

Chapter 1: Introduction	11
Prevalence of self-harm	12
The function of self-harm	13
Risk factors for self-harm	16
Overview and aims of Thesis	16
 Chapter 2: Risk factors for self-harming behaviour in individuals with a history of adverse childhood experiences (ACEs): A systematic review of the literature	
Abstract	20
Introduction	21
Implications of ACEs on health	22
ACEs as a risk factor for DSH	23
Definitions	23
Aims of this SLR	25
Method	27
Search strategy	27
Quality assessment	31
Data extraction	33
Results	33
Descriptive data synthesis	94
Results and Discussion	111
Themes within the literature	111
Strengths and Limitations	134

Conclusion	137
Implications for practice	139
Recommendations for future research	140
Chapter 3: Exploring the lived experiences of hospitalised women with a history of childhood abuse, who engage in self-harming behaviour.	
Abstract	143
Introduction	144
Childhood sexual abuse, mental health issues and hospitalisation	144
Personal support to reduce DSH	148
The current study	149
Method	150
Design	150
Participants	151
Procedure	154
Validity of Research	159
Ethical Approval	163
Results	164
Journey of self-harm	165
Reasons why I self-harm	174
Relationships and self-harm	184
Discussion	190
How do hospitalised women with a history of childhood abuse make sense of their experiences of self-harm?	190

From their perspective, what factors affect their engagement in self-harming behaviours, particularly what has caused them to self-harm on some occasions but not others?	193
Methodological strengths and limitations	196
Implications for clinical practice and research	197
Conclusion	199
Chapter 4: Critique of the Dissociative Experiences Scale (DES and DES-II)	
Introduction	202
Overview of the tool	204
Purpose of the assessment	204
Description of the DES	205
Appropriate use of the DES	208
Theoretical model	208
Development of the scale	210
Characteristics of the Assessment	211
Reliability	211
Validity	216
Use in research and clinical settings	220
Normative data	220
Use in research and clinical practice	222
Conclusion	224
Chapter 5: Thesis conclusions	225
Aims of thesis	226
Main findings	227
Chapter 2	227

Chapter 3	228
Chapter 4	231
Thesis strengths and limitations	231
Implications for practice	232
Future research	235
Conclusion	237
References	238
Appendices	286

List of Tables

Chapter 2

Table 1: Search terms used	27
Table 2: PICO inclusion/exclusion criteria	30
Table 3: Characteristics of included studies	34
Table 4: Measures used and the abbreviations of these	96
Table 5: Risk factors for the NSSI-ACE relationship	106

Chapter 3

Table 6: Principles of trauma informed practice	147
Table 7: Inclusion and Exclusion Criteria	152
Table 8: Participant Demographics	153
Table 9: Group experiential and sub-themes	164

Chapter 4

Table 10: DES subscales	207
Table 11: Cronbach's α results from studies	212
Table 12: Test-retest reliability scores	214
Table 13: Convergent validity of DES	217
Table 14: Normative data for clinical and non-clinical populations	220

List of Figures

Chapter 2

Figure 1: Search results and selection process	29

Chapter 1

Introduction to the Thesis

Given that the understanding of behaviour occurs within a framework of differing perspectives dependent on time, culture and experience (O'Shea, 2019), the definition of self-harm slightly varies between researchers. In the United Kingdom (UK), a commonly used definition of self-harm is one whereby self-harm behaviour is conceptualised as all non-fatal deliberate acts of self-injury (including self-poisoning), regardless of motivation (that is, whether the individual had suicidal intent or not). This definition is used by the Royal College of Psychiatrists (RCPsych, 2020) and the National Institute for Clinical Excellence (NICE) guidelines (2013).

Some researchers have conceptualised self-harm based on its function. For example, Klonsky (2011) defined self-harm as being non-suicidal in nature, referring to the phenomenon as 'non-suicidal self-injury (NSSI)' throughout their research. More specifically, Klonsky (2011) defined NSSI as the direct act of causing intentional harm to one's own body tissue without the intention to die. NSSI is also referred to in the literature and in clinical settings as deliberate self-harm (DSH) and self-injurious behaviour (SIB); these terms are often used interchangeably. Behaviours considered as NSSI do not include socially acceptable behaviours (e.g., tattoos) (Nock, 2009). Although NSSI is considered distinct to that of suicidal behaviours due to the absence of suicidal intent, it should be noted that NSSI is a consistent predictor of suicide, with a study in Northern Ireland finding that nearly half of the individuals who completed suicide had previously self-harmed (Foster et al., 1990). Methods of NSSI include, although are not limited to, cutting, head-banging, hitting oneself, ligaturing, scratching, and hair pulling (Power & Brown, 2010).

Within this thesis, different definitions of self-harm were used throughout the chapters. Chapter 2 consists of a systematic literature review which focused solely on risk factors associated with self-harm, which is explicitly non-suicidal in nature, in a population of individuals who have experienced ACEs. The rationale being that risk factors may be somewhat different for those who engage in self-harm with suicidal intent and/or suicidal behaviours. Therefore, this chapter will refer to the act of self-harm as non-suicidal self-harm (NSSI), as defined previously. However, some of the literature discussed as part of the review draws on theory from self-harm behaviour generally and as such, will be referred to as deliberate self-harm (DSH).

Chapter 3 explores the experiences of hospitalised women with a history of childhood abuse who self-harm, with the inclusion criteria for the study including those who self-harm only, without distinguishing between whether it was suicidal or non-suicidal in nature. Therefore, chapter 3 uses the overall term DSH when referring to the phenomenon.

Prevalence of Self-harm

Research has shown that rates of self-harm in England have nearly tripled in the last 10 years (Mitchell, 2021). A study by McManus (2019) examined the prevalence of self-harm between 2000 and 2014 within the English and Welsh population. They reported varying increases in self-harm across sexes and age groups. The most substantial increase in self-harm (13.2%) was within the population of females aged 16-24. For some individuals, self-harm is an isolated occurrence, however, repeated self-harm is also common, with 20% of people going on to repeat self-harm within a year of initially carrying it out (NICE, 2022). In the UK, there were approximately 60,000 hospital admissions related to self-harm by the end of 2019 (NHS Digital, 2019). Self-harm is considered a major health problem in the UK, as well as globally (Claassen et al., 2016). DSH is more common in women, with 16.7% of

females engaging in NSSI at some point in their lifetime, compared to 4.8% of men in the UK (RCPsych, 2020).

The Function of Self-harm

Many individuals who engage in DSH report that their self-harming behaviours do not involve suicidal intent (RCPsych, 2020); their self-harming is a method of preserving their life and ameliorating any suicidal thoughts (Klonsky, 2009). Klonsky et al. (2015) argues that functions of NSSI include any psychological mechanisms that motivate, reinforce or alleviate the use of NSSI. It has been proposed NSSI can be used for various reasons, including to relieve emotional suffering; to self-regulate emotions; to provide a sense of control; as a method of self-punishment; to express personal distress; to bond with others who self-harm, and as a form of sensation seeking (Klonsky, 2009). It is also widely acknowledged, both in the academic literature and within clinical practice, that DSH can help alleviate overwhelming and unpleasant emotions, and restore a sense of control for an individual (Stanicke, 2021).

Klonsky and Glenn (2009) proposed that the functions of self-harm can be grouped into two main areas: interpersonal and intrapersonal functions. The interpersonal functions of self-harm include peer bonding, manipulating others, and communicating distress to others. The intrapersonal functions of self-harm can include attempting to decrease negative emotions or the ceasing of dissociative episodes. Some qualitative studies have emphasised how adolescents experience DSH in response to interpersonal problems, such as attributing self-harm to experiencing anger and emotional pain in significant relationships (Abrams & Gordon, 2003), and linking the onset of their DSH to stressors occurring in an interpersonal context (McAndrew & Warne, 2014). In clinical case studies, researchers have highlighted

how DSH may be best understood in the context of attempting to cope with traumatic events (Turp, 2003).

One population group who have high incidence rates of childhood maltreatment (CM) and engage in DSH are those diagnosed with Emotionally Unstable Personality Disorder (EUPD). Linehan (1993) proposed that such individuals have difficulties in regulating their emotions which leads to DSH. She argued that such difficulties develop in response to genetic vulnerabilities and an invalidating developmental environment which may occur when an individual experiences Adverse Childhood Experiences (ACEs) (Gratz, 2003). Given that one of the main criteria for a diagnosis of EUPD is engaging in self-damaging behaviours such as DSH (APA, 2013), it should be noted that individuals who have problems in this area, are more likely to acquire this diagnosis. As ACEs are a risk factor for DSH generally, this also highlights the significance of both biological and environmental risk factors in the development of disorders such as EUPD; individuals who are at a significantly higher risk of engaging in DSH (NICE, 2007).

More recent literature has focused on the neurobiological component of DSH. For instance, there is evidence that those who engage in DSH experience an overactivation of the amygdala and that the use of DSH decreases brain activity within this region (Kaess et al., 2021). One of the main functions of the amygdala is to regulate anxiety, stress and fear (Rajmohan & Mohandas, 2007).

Reitz and Colleagues (2015) reviewed the Magnetic Resonance (MRI) scans of individuals diagnosed with emotionally unstable personality disorder (EUPD) during an artificial incident of DSH. During the study, participants were exposed to a stressor and then either received a minor cut to their skin, or had a scalpel make contact with their skin, without an incision being made. MRI scans showed that the activity of the amygdala

significantly decreased for those who had been cut. Kaess et al. (2021) produced similar evidence that the over activity of the fronto-limbic system of the brain (where the amygdala resides) can be reduced during an episode of DSH.

Literature has proposed that DSH can be viewed within the framework of behavioural addiction for some individuals (Blasco-Fontecilla et al., 2016). Addiction is a multifaceted notion that requires interconnecting components such as neurochemistry, psychology, and behaviour (Satel et al., 2017). In terms of neurochemistry and with regards to the role of dopamine in the engagement of DSH, there is some evidence to suggest that DSH elevates levels of dopamine within the brain (Kaess et al., 2021; Reitz et al., 2015). However, such research on the relationship between dopamine and DSH is limited, and most studies in support of the positive correlation between DSH and dopamine were gained from participants with EUPD or animal studies (Tiefenbacher et al., 2005; Osuch & Payne, 2009).

Some research has proposed that the psychological state prior to individuals engaging in self-harm is like the withdrawal symptoms which those dependent on substances experience (Faye, 1995). In other words, those who self-harm can also experience significant physical urges to engage in the behaviour of DSH (Washburn et al., 2010).

One study investigated whether NSSI could be understood in the context of an addiction model and administered a self-report tool to individuals who engaged in repeated NSSI, which was adapted from the criteria substance dependence at the time (APA, 2000). According to the study, just over 80% of participants would have met the criteria for substance dependence, as defined by the DSM-IV (APA, 2000), when substance misuse was replaced with repetitive self-harming behaviour (Nixon et al., 2002). However, regardless of the function of self-harm, it poses an increasing public health concern (Hawton et al., 2016)

and has propelled research to be conducted to understand the various risk factors associated with self-harm.

Risk factors for Self-harm

Larkin and colleagues (2014) performed a systematic review looking at risk factors for repeated self-harm in hospital-based studies. They found a consistent and large association between having a diagnosis of personality disorder and engaging in DSH, which is unsurprising given that DSH is one of the criteria for a diagnosis of certain personality disorders such as EUPD. Furthermore, they found hopelessness to be a predictor of DSH, with a consistent moderate association between scores on the Beck Hopelessness Scale (BHS; Beck, 1988) and DSH. They found that a history of psychiatric treatment increased risk of engaging in repeated NSSI, as did alcohol abuse/dependence. They reported several other factors that were less often researched but demonstrated emerging evidence of a moderate association with repeated NSSI, specifically impulsivity, comorbidity, poor problem-solving ability, sexual abuse, stressful life events, employment or educational problems, interpersonal and financial problems, and attitude towards self-harm (Larkin et al., 2014). Furthermore, ACEs have also been identified as significant risk factors for self-harm, which are defined as traumatic events which occur before adulthood, such as physical, psychological and sexual abuse, as well as physical and emotional neglect (Felitti et al., 1998). Please see Chapter 2 for further details.

Overview and Aims of this Thesis

There is now a well-established relationship between ACEs and self-harm, which has been underpinned by research and academic literature. It is widely accepted that those with a history of ACEs are at higher risk of self-harming in a variety of populations, including clinical, non-clinical and forensic populations. (Cleare et al., 2018; Howard et al., 2017;

Russell et al., 2019). However, little is understood about the mechanisms which underpin this relationship. The overarching purpose of this thesis was to further explore the nature of the relationship between ACEs and DSH, and to gain insight into factors which increase the likelihood of individuals with a history of ACEs engaging in self-harm. Specific aims of individual chapters are detailed below:

- Chapter 2 aimed to synthesise and evaluate research findings in relation to risk factors for NSSI amongst population samples who have experienced ACEs. Potential risk factors which were identified related to personal, environmental, and social factors that underlie the ACEs-NSSI relationship. Current research has failed to explore factors that can explain risk variation in individuals with ACEs. Established risk factors for self-harm include social difficulties, recent life events and enduring psychological characteristics (NHS Digital, 2019). However, these factors are derived from the general self-harming population rather than being specific to those with a history of ACEs. The risk factors identified in this chapter, may help to inform the development of future prevention and treatment strategies for those at risk of NSSI with a history of ACEs in community, hospital and prison settings.
- To date, there has been no literature examining the lived experiences of hospitalised women with a history of childhood abuse who engage in self-harm, despite them being considered a high risk to self and a clinically vulnerable population. It is vital to have insight into their experiences, and therefore, Chapter 3 consists of a qualitative study which explored the experiences of hospitalised women with a history of childhood abuse, who have a history of repeated self-harm. The research particularly focused on what factors relate to their engagement in DSH, which is of importance for clinicians working with this population. Although it is acknowledged that the findings

cannot be generalised, the results of this study have implications for clinical practice, and highlighted recommendations for future research.

- Chapter 4 provides a critical evaluation of the Dissociative Experiences Scale (DES; Carlson & Putnam, 1986). Dissociation has been established as playing a role in the relationship between ACEs and the engagement in self-harm (Franzke et al., 2015; Gomez, 2019). The DES-II was evaluated in terms of its reliability and validity when assessing dissociative experiences in both clinical and non-clinical settings.
- Chapter 5 provides a summary of the findings from each chapter, along with implications for practice and future research recommendations.

Chapter 2

Risk Factors for Self-harming Behaviour in Individuals with a History of Adverse Childhood Experiences (ACEs): A Systematic Literature Review

Abstract

The aim of this review was to examine risk factors for non-suicidal self-harm (NSSI) in individuals with ACEs. Four academic databases were searched resulting in 437 papers, which were reviewed based on relevance through reading the study titles and abstracts. Sixty papers were assessed against the inclusion and exclusion criteria and were subjected to a quality review, which resulted in 55 papers being included in the final review. Overall, the studies identified post-traumatic stress disorder, dissociation, and emotion dysregulation as potential risk factors for NSSI in those with a history of ACEs. Although a variety of further intra and interpersonal factors were identified, which could form a basis for future research into risk factors for NSSI, they should not be considered risk factors at present due to these variables being under researched. Findings were discussed with reference to the implications for those treating individuals who engage in NSSI with a history of ACEs, and specific interventions/preventions for those with a history of ACEs. Suggestions were made regarding the need for population specific interventions. Limitations of the review were discussed and suggestions for future research were made.

Introduction

In recent years, research has started to examine adverse childhood experiences (ACEs) in relation to non-suicidal self-harm (NSSI) (see Chapter 1 for definition). ACEs are defined as traumatic events that take place before the age of 18, such as physical, psychological and sexual abuse, as well as physical and emotional neglect (Felitti et al., 1998). In their pioneering ACE study, Felitti et al. (1998) included the subtypes of childhood abuse in their definition of ACEs, as well as experiences of household dysfunction. Examples of this included parental separation, witnessing intimate partner violence, and living with family members with substance abuse problems, mental illness or who had been incarcerated.

Research has demonstrated that ACEs are more widespread than one would expect (Merrick et al., 2017). A meta-analysis found a pooled prevalence of nearly 24% of Europeans reporting at least one ACE and just under 19% reporting two or more ACEs (Bellis et al., 2019). Furthermore, a research study examining the incidence of ACEs within the adult English population found that 46% of individuals had at least one ACE and 8% had experienced four or more (Bellis et al., 2014). In terms of the prevalence of DSH, one study found that approximately one in every four women (26%), aged 16 to 24-year-old, reported having engaged in DSH on at least one occasion (NICE, 2020). The prevalence rate for males in the same age group was 10% (NICE, 2020).

Children in Need (2019) collected data which demonstrated that 80% of all cases referred to them that year (399,500), had at least one ACE related problem (Amussen et al., 2020). Given that the cases had been reported to Children in Need, it can be assumed that the ACEs they had experienced could amount to that of child abuse, as opposed to an ACE such as parental separation. Therefore, it is essential to develop our understanding of the factors increasing the risk of NSSI amongst those who experienced ACEs, given the high prevalence

rated reported for the English population. Furthermore, globally it was estimated that nearly one billion children experienced some form of childhood abuse in 2015 (Hillis et al., 2016).

Implications of ACEs on Health

Research has demonstrated the widespread and negative impact experiencing ACEs can have on one's health (Felitti et al., 1998). This has highlighted a significant relationship between childhood abuse and/or being raised within a dysfunctional family and several health risk factors. In terms of physical health, Felitti et al.'s (1998) ACE study found that those who had experienced four or more ACEs, were nearly three times more likely to develop heart disease, one and a half times more likely to develop cancer and almost four times more likely to be diagnosed with lung disease. With regards to mental health difficulties, those who had experienced four or more ACEs were twelve times more likely to take their own life. Additionally, they were more prone to developing addictions, with individuals with four or more ACEs being seven times more likely to become alcohol dependent, and nearly ten times more likely to become addicted to heroin or crack cocaine in later life (Felitti et al., 1998). Lastly, the study found that those who had experienced six or more ACEs, would have a shorter life span by about 20 years on average (Felitti et al., 1998).

The ACE study (Felitti et al., 1998) was conducted on a sample of American participants who were mostly Caucasian and educated to a university level. Therefore, their findings lack in generalisability to other races, cultures and those with a lower level of education. However, this study has since been replicated by many researchers to cover a wide range of populations. For instance, Harris and colleagues (2011) replicated the study with children in a socially deprived area in the US and found that those who had experienced four or more ACEs, were thirty-two times more likely to develop behavioural and learning difficulties whilst at school. Bellis et al. (2015) replicated the study within a Welsh population

and established a link between ACEs and criminality, with individuals with four or more ACEs being fifteen times more likely to have engaged in violent behaviour in the past 12 months, as well as being twenty times more likely to be incarcerated during their lifetime. Therefore, the impact of ACEs has been proven to be a significant social and health issue.

ACEs as a Risk Factor for NSSI

Research has established that individuals who have encountered increased rates of ACEs are at an increased risk of engaging in NSSI, compared to those who have not experienced ACEs (Linehan, 1993). Occurrences of neglect and sexual abuse have been shown to be significantly more common in patients who engage in NSSI (Kaess et al., 2013). Another study reported that perceived childhood maltreatment and parent-child relational trauma were associated with an increased risk of engaging in NSSI (Martin et al., 2016). Therefore, those who have a history of specific ACEs (principally childhood abuse) are deemed a high-risk group in terms of NSSI (Serafini, 2017). Research has also found a significant association between the number of events amounting to childhood abuse and an increased risk of engagement in self-harm in a student population (Wan et al., 2015). In addition to this, individuals are at a higher risk of self-harm when they have experienced abuse from their parents and other individuals outside of the family context. This is unsurprising as this indicates they are experiencing abuse from several sources (Wan et al., 2015).

Definitions

Self-harm

The current review defines self-harm as “the intentional destruction of one’s own body tissue without suicidal intent and for purposes not socially sanctioned” (Martin et al., 2016, p. 565). As such, all papers examining those who self-harm with suicidal intent were

excluded from the current review. The reviewer used the specific terminology used by the authors of the reviewed articles when referring to their research papers. However, the term NSSI was used when referring to a set of multiple papers where different terminology is used. See Chapter 1 for further details regarding terminology.

Adverse Childhood Experiences (ACEs)

Within this review, ACEs will include sexual abuse, physical abuse, psychological/emotional abuse, and physical neglect. The definition will also be extended to reflect the definition of the original study by Feletti and colleagues (1998), to include childhood experiences of parental separation, witnessing domestic violence, and having parents who have issues with addiction, mental health issues and criminality. The rationale for this being that such experiences were incorporated into the definition of adverse childhood experiences in the pioneering study (Felitti et al., 1998). Papers have used different terms such as childhood maltreatment (CM), childhood abuse or research specific subtypes of ACEs. The reviewer used the specific terminology used by the authors when referring to their research papers but used the term ACEs as an overall descriptor.

Risk Factor

Within the review the term risk factor refers to individual, social or circumstantial factors that either contribute to or facilitate an act of NSSI (Kraemer et al., 1997). Some papers refer to the factors they are investigating as risk factors, whilst others who are investigating the same factors refer to them as variables. Some papers include the use of mediational factors or mediators, which are variables which contribute to explaining relationship between two factors (Richiardi et al., 2013); which in the current review is the ACEs and NSSI relationship. A mediator variable has been defined as an indirect effect which indicates a causal relationship, and whereby an independent variable produces a

mediating variable, which in turn produces a dependent variable (Sobel, 1990). As such, mediator variables are included in the review when determining risk factors for NSSI in those with a history of ACEs.

Aims of this Systematic Literature Review

Due to the high prevalence of ACEs in those who engage in NSSI, it was felt necessary to gain a fuller understanding of factors, which are associated with NSSI in individuals who have experienced ACEs. Understanding risk factors for NSSI within this specific population will be helpful for future research in terms of identifying any differences in risk factors between those with and without a history of ACEs. It will also be helpful in highlighting any differing assessment and treatment needs between these populations. Furthermore, given that nearly half of the English population have experienced one ACE (Bellis et al., 2014), it is also important to explore why some individuals go on to engage in NSSI, whilst others do not. Therefore, examining potential risk factors which increase the likelihood of the onset of NSSI in this population is crucial. Therefore, it was felt that a review of the literature would be beneficial for the field of psychology.

An initial search of the Cochrane Library, Google Scholar and Ovid was conducted in January 2020 to ascertain the need for the current systematic literature review. One systematic review which examined the relationship between CM and NSSI was identified, which a brief overview of the mediators and moderators reported in in their included articles (Liu et al., 2018). The current review aimed to understand the factors that *increase* the likelihood of engaging in NSSI for those with a history of ACEs, rather than establishing a relationship between NSSI and ACEs only. The current review assesses *all* ACEs rather than just those that constitute childhood abuse. The previous review (Liu et al., 2018) was narrower in scope, focusing on behaviours which constitute childhood abuse only. The review

also did not include the term adverse childhood experiences in their search terms, likely leading to the omission of various relevant papers (Liu et al., 2018). This is now a well-established term which has been widely used within the academic literature (Felitti et al., 1998). As such, it was felt that there was sufficient need for the current review.

The aim of the current review was to synthesise and evaluate individual research findings in relation to risk factors for NSSI in a population with ACEs. Risk factors may include personal, environmental, and social factors that underlie the ACE-NSSI relationship. Current research has failed to explore factors that can explain risk variation in individuals with ACEs. Established risk factors for self-harm include social difficulties, recent life events and enduring psychological characteristics (NHS Digital, 2019). These factors are derived from the general self-harming population rather than being specific to those with a history of ACEs. This generic approach to understanding NSSI emphasises the need to refine and determine causes that are pertinent to at-risk populations. The current review may help to inform the development of future prevention and treatment interventions for those at risk of NSSI with a history of ACEs in community, hospital and prison settings.

The following question is addressed in this systematic review:

1. What are the risk factors for NSSI in a population with a history of ACEs?

Method

Search Strategy

A search of the following databases was undertaken in November 2020, and updated in February 2022 and again in February 2023: Web of Science, PsychArticles, Embase, Ovid (journals), Ovid MEDLINE, PsychInfo, Proquest, and SCOPUS. The search terms used were based on two previous systematic reviews exploring the relationship between ACEs and NSSI (Liu et al., 2018; Serafini et al., 2017). Both these reviews found that there was a positive association between childhood abuse and NSSI. The broad term adverse childhood experiences was added into the search terms given that it is a well-established phrase used within the academic literature and, as such, would serve to ensure that relevant papers were retrieved.

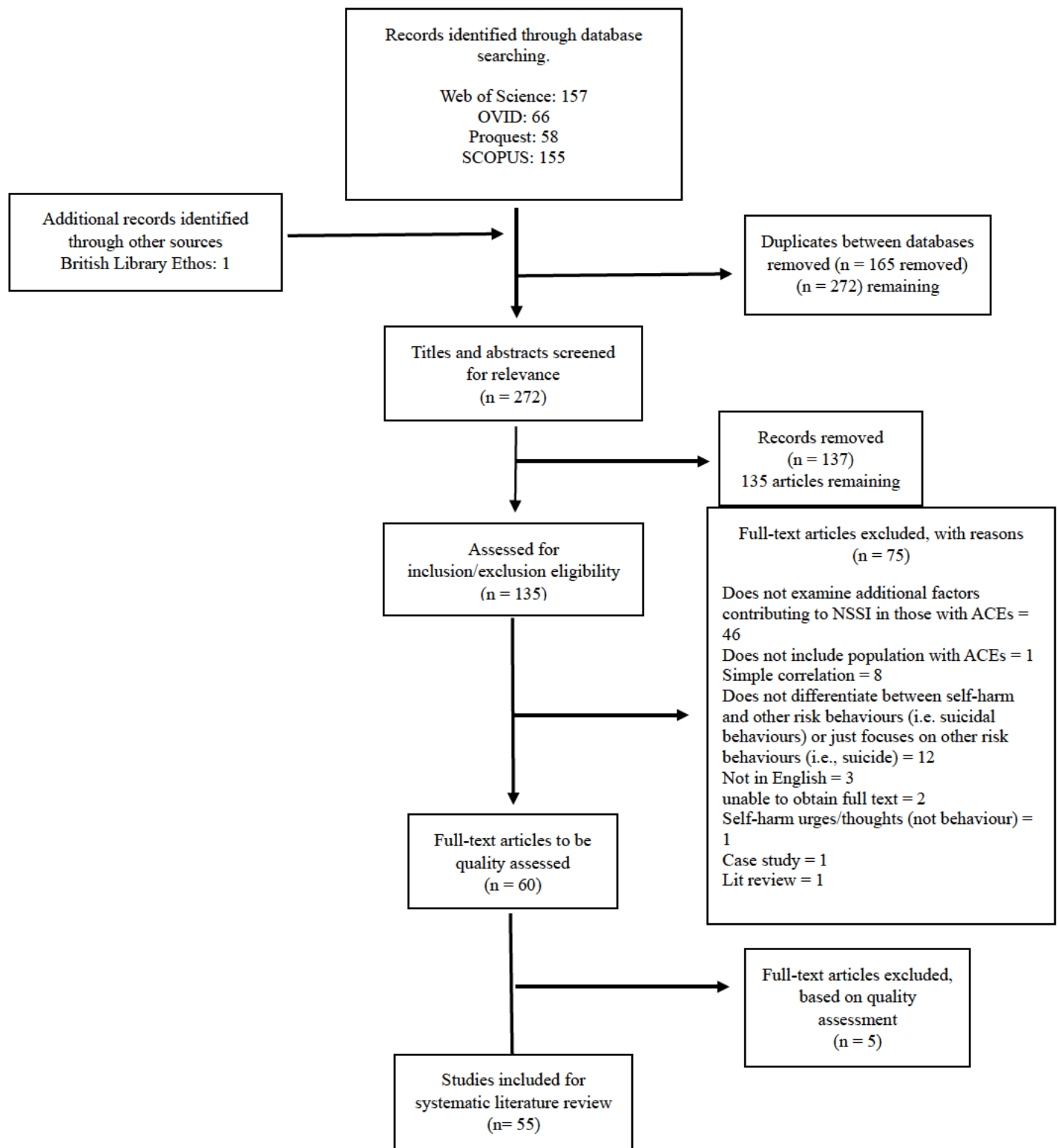
Table 1

Search terms used.

Database	Search Terms
Web of science	("adverse childhood experiences" OR "child* maltreat*" OR "child* abuse" OR "child* trauma" OR "emotion* abus*" OR "psychological* abus*" OR "physical* abus*" OR "sexual* abus*" OR "child* neglect*") AND ("self-injur*" OR parasuicid* OR "self-harm*" OR "self-mutilat*")
OVID which includes: PsycArticles, Embase, Ovid (journals), Ovid MEDLINE and PsycInfo	1. ("adverse childhood experiences" or "child* maltreat*" or "child* abuse" or "child* trauma" or "emotion* abus*" or "psychological* abus*" or "physical* abus*" or "sexual* abus*" or "child* neglect*") 2. ("self-injur*" or parasuicid* or "self-harm*" or "self-mutilat*") 3. 1 AND 2
Proquest	1. ("adverse childhood experiences" or "child* maltreat*" or "child* abuse" or "emotion* abus*" or "child* trauma" or "psychological* abuse*" or "physical* abus*" or "sexual* abus*" or "child* neglect") 2. ("self-injur*" or parasuicid* or "self-harm*" or "self-mutilat*") 3. 1 AND 2
SCOPUS	("adverse childhood experiences" OR "child* maltreat*" OR "child* abuse" OR "child* trauma" OR "emotion* abus*" OR "psychological* abuse*" OR "physical* abus*" OR

"sexual* abus*" OR "child* neglect") AND ("self-injur*" OR parasuicid* OR "self-harm*" OR "self-mutilat*")

In total, 437 papers were identified from electronic databases searched. One hundred and sixty-five duplicates were removed, leaving a total of 272 papers. The researcher then reviewed the titles and abstracts of the remaining articles and disregarded those which were unrelated to the aims of the systematic review, leading to the exclusion of 137 articles. The remaining full texts were then assessed based on inclusion/exclusion criteria (see Table 2). The PICO (population, intervention, comparison and outcome) framework was deemed suitable for structuring the inclusion/exclusion criteria, as research has suggested that the use of this framework can lead to increased median sensitivity and appropriateness of search results when carrying out systematic literature reviews (Agoritsas et al., 2012). Once articles were compared against the exclusion/inclusion criteria, 75 more articles were excluded, leaving 60 deemed suitable for quality assessment. See Figure 1 for a diagrammatic breakdown of the search results and the selection process.

Figure 1*Search results and selection process*

All articles were reviewed against an inclusion and exclusion criteria developed for the purpose of the review (see Appendix A). The review examined a population of all ages, to gain a fuller understanding of potential risk factors for NSSI in those with ACEs. It should be noted that those who engage in NSSI may have experienced the onset of NSSI during different developmental periods, i.e., in childhood, adolescence or adulthood. Furthermore, the review did not include time parameters within the searches, in order for the review to collate a wealth of information to derive potential risk factors for NSSI in those with ACEs.

Table 2

PICO inclusion/exclusion criteria

	Inclusion	Exclusion
Population	Males and females of all ages that self-harm with a history of adverse childhood experiences as defined in the current form. Clinical and non-clinical populations. Inpatient and community samples. Western and non-western countries.	Individuals engaging in suicidal behaviours or studies that do not differentiate between suicidal and non-suicidal behaviours. Studies that included abuse that occurs solely in adulthood i.e., at the age of 18 or over. Papers that study those that self-harm without any mention of ACEs within the population.
Intervention	Any interventions which included DSH as a variable. Mention of risk/vulnerability factors. Mention of mediators and moderators of DSH. Predictors of DSH in ACEs.	Studies looking at prevalence of DSH in those with a history of ACEs. No mention of factors that could increase/decrease risk of NSSI in ACEs.
Comparator	Appropriate control sample demonstrating resilience / risk factors i.e., those who self-harm without a history of ACEs or those with a history of ACEs that do not self-harm. Studies comparing the population of interest with healthy controls. Comparing those who have and do not have ACEs that engage in DSH.	

	Within sample comparison.	
Outcome	Statistical analysis of characteristics potentially increasing chance of DSH.	Research solely examining the correlation/relationship between ACEs and self-harm.
	Any information detailing mediators and moderators of DSH in ACEs.	Simple correlational studies (that do not control for confounding variables)
	Level of engagement in self-injurious behaviour in those with and without ACEs.	Looking at the prevalence of ACEs in DSH.
Studies	Research design: Quantitative and qualitative research.	Research design: case studies.
	Language: English.	Language: non-English.
	Format of literature: full text peer reviewed journal article.	Format of literature: abstracts only, book chapters.

Quality assessment

Studies that were deemed relevant once the inclusion/exclusion criteria were applied (N = 60) were then quality assessed. All studies, except one, were of a cross-sectional design and were therefore critically assessed using the Appraisal tool for Cross-Sectional Studies (AXIS; Downes et al., 2016) (Appendix B). The AXIS appraises the following areas of a study: introduction, methods, results, discussion and other. Questions were used to appraise these areas, with the assessor answering “yes”, “no” or “don’t know” to each question. Although the AXIS tool is not designed to be interpreted numerically, as the creators of the tool indicate that this can be challenging given its non-linear format (Downes et al., 2016), the reviewer revised the checklist to reflect a numerical format to allow for quantifiable comparisons between the included studies regarding quality. The AXIS comprises 20 questions in total. For every “yes” answer a point was scored, except for question 19 which was reverse scored. Each score out of 20 was converted into a total percentage for each paper and only those with quality assessment scores of >60% were included in the systematic

review. The rationale being that papers with a quality assessment score below 60% cannot be considered moderately robust.

For the research paper which was a longitudinal study, the Effective Public Health Practice Project Quality Assessment Tool (EPHPP; Thomas et al., 2004) was administered for quality assessment purposes (Appendix C). The assessment is accompanied by a dictionary, which details how to rank different components of a research paper and then categorise the study as being weak, moderate or strong based on their methodological quality. The EPHPP has been shown to have good psychometric properties, including fair inter-rater agreement for different components of the assessment tool and excellent agreement for the overall rating (Armijo-Olivo et al., 2012). For the current review, it was agreed that any studies considered weak would be removed from the final review.

All papers were quality assessed by the author and 10% of the papers were dual coded by a colleague on the Forensic Psychology Practice Doctorate course at the University of Birmingham. This was an additional measure taken to minimise potential effects of error and bias from the author when appraising papers for the review. Five papers were selected using the randomisation function in an excel spreadsheet, created by the author. There were minimal differences between the quality assessments of the selected papers and these differences were resolved through discussion. It was noted that the differences in scoring were due to the dual coder's lack of understanding of the AXIS tool. Once clarified, the same scores were given for all papers. Quality scores for each paper can be found in Appendix D and Table 3, and references to the scores of relevant papers were made throughout the review.

Data Extraction

Data were extracted from all papers that were deemed of sufficient quality, using a form generated by the author (Appendix E). Data extracted included the aims of the study, the study setting, research participants used (recruitment criteria, sample size and characteristics of the sample), study methods (collection methods used and reliability and validity of the instruments/measures used), data analysis (and potential biases), results, as well as strengths and limitations of the research.

Results

Following quality assessments, 55 articles were included in the systematic review. Table 3 provides a summary of data extracted from each study.

Table 3*Characteristics of included Studies*

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
1	Andersson et al. (Study 1) Emotional Dysregulation and Trauma Symptoms Mediate the Relationship Between Childhood Abuse and Nonsuicidal Self-Injury in Adolescents. Sweden (2022) 85%	To assess whether problems with emotion regulation (ER) and trauma symptoms (TS), mediated the relationship between childhood abuse (sexual, physical and emotional) and NSSI.	Sample consisted of 3,169 high-school students aged 16–19 (M = 18.1, SD = 0.5). Of the total sample: 43.6% were male, 55.6% were female and 0.8% identified as non-binary. Adverse Childhood Experiences (ACEs) being studied = emotional, physical or sexual abuse.	Lifetime prevalence of NSSI (n = 867) compared to those without a history of NSSI (n = 2,281)	NSSI: This was assessed using one item from the Self-Injurious Thoughts and Behaviours Interview (SITBI; Nock et al., 2007). The item asked whether the participant had ever engaged in NSSI using various methods. Emotional Abuse: Participants were coded as either experiencing emotional abuse or not. This was based on asking about whether they had experiences of being repeatedly insulted, people repeatedly acting as if they were invisible, being locked in confined areas or out of their house, or if they experienced repeated threats of harm. Physical Abuse: Participants were coded as either experiencing physical abuse or not. This was based on participants having experienced various forms of physical violence, including with weapons, either on single or multiple occasions.	Structural Equation Modelling: Both ER and TS, independently, partially mediated the relationship between all forms of abuse and NSSI: - Emotional abuse and NSSI was partially mediated by ER (Direct effect = 0.17, $p < 0.001$; Mediated effect = 0.14, $p < 0.001$) and by TS (Direct effect = 0.11, $p < 0.001$; Mediated effect = 0.20, $p < 0.001$). - Physical abuse and NSSI was partially mediated by ER (Direct effect = 0.12, $p < 0.001$; Mediated effect = 0.12, $p < 0.001$) and TS (Direct effect = 0.07, $p < 0.001$; Mediated effect = 0.29). - Childhood sexual abuse and NSSI was partially mediated by ER (Direct effect = 0.18, $p < 0.001$; Mediated effect = 0.11, $p < 0.001$) and TS (Direct effect = 0.13, $p < 0.001$; Mediated effect = 0.16, $p < 0.001$) Combined in parallel, ER and TS fully mediated the abuse and NSSI relationship:	Strengths: - Use of a large sample (n = 3,169) - Reliable and validated measures of ED ($\alpha = 0.95$) and TS ($\alpha = 0.84$) - Reported non-significant findings. Limitations: - Data was cross-sectional, which limits assumptions of causality. - Use of self-report measures for abuse history could be affected by retrospective recall bias. - There was a response rate of 42.3% - Results cannot be generalised to populations other than community samples of older adolescents. - Due to variables being dichotomous in nature, the impact of the

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
					Sexual abuse: Participants were coded as either experiencing sexual abuse or not. This was based on participants having experienced various forms of penetrative or non-penetrative sexual abuse. Trauma Symptoms: Assessed using the Trauma Symptom Checklist for Children (TSCC; Briere, 1996). The measure consists of 54 self-report items which assessed anxiety, depression, post-traumatic stress, sexual problems, dissociation and anger. Difficulties with Emotion Regulation (ER): ER was assessed using the Difficulties with Emotion Regulation Scale, 16-item version (DERS-16; Bjureberg et al., 2016). This consists of 16 self-report questions rated on a five-point Likert scale.	- Emotional abuse: Direct effect of emotional abuse on NSSI (0.31, $p < 0.001$). Emotional abuse and NSSI was mediated in parallel by ED and TS (Direct effect = 0.31, non-significant; ED = 0.14, $p < 0.001$; TS = 0.20, $p < 0.001$; Mediation total = 0.34, $p < 0.001$) - Physical abuse: Direct effect of physical abuse on NSSI (0.23, $p < 0.001$). Physical abuse and NSSI was mediated in parallel by ED and TS (Direct effect = -0.05, $p < 0.05$; ED = 0.12, $p < 0.001$; TS = 0.17, $p < 0.001$; Mediation total = 0.29, $p < 0.001$) - Childhood sexual abuse (CSA): Direct effect of CSA on NSSI (0.29, $p < 0.001$). CSA and NSSI was mediated in parallel by ED and TS (Direct effect = 0.02, non-significant; ED = 0.11, $p < 0.001$; TS = 0.16, $p < 0.001$; Mediation total = 0.27, $p < 0.001$).	severity or frequency of abuse or NSSI could not be considered within the structural equation modelling.
2	Arens et al. (Study 2) Child Maltreatment and Deliberate Self-Harm Among College Students: Testing Mediation and Moderation	The study assessed the relationships between childhood maltreatment (CM), impulsivity, negative affectivity, and deliberate self-harm (DSH).	Final sample consisted of 407 undergraduate college students from a US university (aged 18 – 24; M = 20.33, SD = 1.39 65% were female participants.	No comparison group	Self-harm: Assessed using the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001) which consists of 17 self-report items. The assessment examines many methods of self-harm, as well as their frequency and severity. Impulsivity: The UPPS Impulsive Behavior Scale (UPSS-P;	Mediation analyses: Mediation analysis determined that CM was a significant predictor of urgency ($B = 3.41, p < .001$) and that urgency was a significant predictor of DSH ($B = 0.05, p < .05$). Before the mediation analysis, CM was a significant predictor of DSH ($B = 0.57, p$	Strengths: - The sample consisted of a non-clinical population in which DSH was somewhat common, compared to most other studies which use clinical populations who likely have complex psychopathology. Therefore, findings are

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
	Models for Impulsivity United States (US) 2012 65%		Ethnicity = 93.6% were White/ Caucasian participants. Adverse Childhood Experiences (ACEs) being studied = sexual abuse, negative home environment (inc. punishment), and neglect.		Whiteside & Lynam, 2001) measures four personality routes (urgency, premeditation, perseverance and sensation seeking) to impulsivity. Child maltreatment: The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995) assesses the incidence and scope of different types of childhood maltreatment. Positive & negative affect: The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a self-report measure which examines an individuals' experiences of affect (both positive and negative).	< .05), however, after controlling for urgency, CM no longer significantly predicted DSH. Thus, suggesting that urgency fully mediates the relationship between CM and DSH. The indirect effect between CM and DSH via urgency was significant, $b = .16$, 95% CI [.04 -.40]. The standardised indirect effect was non-significant once the urgency variable had been introduced, which suggests a mediation effect. Perseverance did not significantly mediate the CM and DSH relationship ($b = -.03$, 95% CI [-.02, .13]). Premeditation did not significantly mediate the CM and DSH relationship ($b = -.02$, 95% CI [-.13, .02]). Sensation seeking did not significantly mediate the CM and DSH relationship ($b = .01$, 95% CI [-.01, .09]).	more generalisable to the general population. - All measures have good validity for the current sample: • DSHI ($\alpha = .89$) • UPSS-P (all scales between $\alpha = .86$ and $\alpha = .90$) • CATS ($\alpha = .93$) reported good reliability for the current sample. - Results suggest that urgency is a facet of impulsivity which is primarily linked with DSH, guiding treatment implications. Limitations: - Cross-sectional so cannot infer causality. - Limited generalisability: conducted on college students (aged 18-24) from one US university, which were predominately white/Caucasian. - The measures used make the data susceptible to various biases due to their self-report nature. - The data may be susceptible to method variance.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
							- Causal inferences cannot be drawn due to cross-sectional nature of the study.
3	Arens et al. (Study 3) Child Maltreatment and Deliberate Self-Harm: A Negative Binomial Hurdle Model for Explanatory Constructs US 2014 70%	This paper examines the associations between CM, negative urgency, sense of control, distress tolerance desire for control, and DSH.	The sample consisted of 641 undergraduate college students (aged 18 to 25; $M = 19.68$, $SD = 1.59$) attending a US university. Sample consisted of a higher percentage of women (73%) and white/Caucasian individuals (91.9%). Adverse Childhood Experiences (ACEs) being studied = sexual abuse, negative home environment (inc. punishment) and neglect.	No comparison group	Self-harm: Deliberate Self-Harm Inventory (DSHI; Gratz, 2001) – As described previously. Child maltreatment: Child Abuse and Trauma Scale (CATS; Sanders & Becker-Laussen, 1995) – As described previously. Sense of control and desire for control: This was assessed using two aforementioned subscales from the Shapiro Control Inventory (Shapiro, 1992) which is a self-report measure. Distress Tolerance: The Distress Tolerance Scale (DTS; Simons & Gaher, 2005) assesses four different facets of emotional distress. Impulsivity: The UPPS Impulsive Behavior Scale (UPSS-P; Whiteside & Lynam, 2001) - As described previously.	Negative Binomial Hurdle Model: There were significant indirect effects of child abuse on the frequency of MSSSI through negative urgency ($b = 0.25$, $p = .038$), and the indirect effects of child abuse approached significance for the probability of NSSI, via negative urgency ($b = .16$, $p < .053$). Although indirect effects of child abuse on NSSI, via distress tolerance were non-significant, the effects of child abuse on both the likelihood and frequency of NSSI were indirect through distress tolerance, when negative urgency mediated the distress tolerance and NSSI association. (Frequency of DSH: $b = .28$, $p = .017$; Likelihood of DSH: $b = 0.18$, $p = .020$.) Sense of control was not statistically related to the likelihood of NSSI but was positively related to the frequency of NSSI, within those who reported a history of NSSI. The indirect effect of child abuse on the frequency of NSSI, through sense of control was significant ($b = -1.87$, $p = .001$).	Strengths: - For the subscales used from the Shapiro Control Inventory, their internal consistency were all $\alpha > .80$. - DTS internal consistency ($\alpha = .88$) - UPPS-P: Internal consistency ($\alpha = .88$). - Data from participants who had last engaged in DSH more than 5 years ago ($n = 40$) were removed prior to analysis. This was to improve the control of the temporal ordering of variables assessed. Limitations: - Limited generalisability as the sample consisted of predominately female and white/Caucasian university students. - The measures used make the data susceptible to various biases due to their self-report nature. - The data may be susceptible to method variance.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
							- Given the use of cross sectional data, causality cannot be assumed.
4	Auerbach et al. (Study 4) Adolescent nonsuicidal self-injury: Examining the role of child abuse, comorbidity, and disinhibition. US 2014 75%	This study examined whether increased comorbidity and disinhibition mediates the association between childhood abuse and self-harm.	The sample consisted of 194 participants (aged 13-18 years; M = 15.53, SD = 1.34) recruited from an acute residential treatment programme. The sample included 50 male & 144 female participants, 77.2% were Caucasian. ACEs = Emotional, physical, sexual abuse and emotional and physical neglect.	Self-harmers (n=157) were compared to non-self-harmers (n=37)	Childhood trauma: Assessed using the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) which is a self-report measure consisting of 25-items developed to assess various experiences of childhood abuse. Mental disorders: Assessed using the Mini International Neuropsychiatric Interview for children and adolescents (MINI-KID; Sheehan et al., 2010) which is a standardised clinical interview used to assess various psychopathology in children/adolescents, with diagnostic purposes. Self-injury: Self-Injurious Thoughts and Behaviours Interview (SITBI; Nock et al., 2007) – As described previously.	Mediation analysis: Childhood abuse positively predicted the quantity of psychiatric diagnoses ($b = 0.018$, $SE = 0.004$, $p < 0.0001$), and the quantity of psychiatric diagnoses predicted the incidences of self-harm in the previous month ($b = 0.263$, $SE = 0.017$, $p < 0.0001$). After controlling for the variance in psychiatric diagnoses, the effect of childhood trauma on self-harm occurrence in the past month was significant ($b = 0.0006$, $SE = 0.003$, $p = 0.845$). The indirect effect ($b = 4.32$, $SE = 0.001$, $p < 0.0001$) suggested that an increased psychiatric comorbidity mediated the association between childhood trauma and the frequency of self-harm in the last month.	Strengths: - Good validity and reliability of CTQ ($\alpha = 0.89$) - Reported non-significant findings. Limitations: - Cross-sectional design; cannot infer causality and is vulnerable to self-report biases. - Limited generalisability: more females than males - Fairly small sample size of non-self-harmers which made comparisons between data groups problematic.
5	Bikmazer et al. (Study 5) Association of Dissociation with Suicide Attempt and Non-Suicidal Self Injury in Adolescents with a	This study aimed to assess suicidal and self-harming behaviour in adolescents with a history of childhood sexual abuse (CSA) in relation to dissociation and	The sample consisted of 100 adolescents (M = 15.95 years old) who were referred for forensic psychiatric evaluation. Of the sample, 94 % were female and 88%	Those who have engaged in NSSI (n = 48) compared to those who have not (n = 52)	NNSI: Information was obtained as part of an interview, but it does not detail specifically what they were asked. CSA: The participants were interviewed in relation to different factors concerning their traumatic	Hierarchical stepwise logistic regression: When the total scores from the Child Dissociative Checklist and Adolescent Dissociative Experiences Scales entered in step 1, the Child Dissociative Checklist total score increased the risk of self-harm (OR = 1.23, 95% CI [1.05, 1.44]).	Strengths: - Provided useful implications for clinical practice (i.e., to prioritise the treatment of dissociation to help with reducing engagement in NSSI).

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
	History of Sexual Abuse. Turkey (2022)	characteristics of the sexual abuse, child, and perpetrator.	met the criteria for post-traumatic stress disorder (PTSD). ACEs = CSA		experiences, including how and how often the abuse occurred. Dissociation: this assessed by two scales: - The Turkish version of the Adolescent Dissociative Experiences Scale (A-DES; Armstrong et al., 1997) which is a 30-item self-report measure to assess dissociation in children. - The Turkish version of the Child Dissociative Checklist (CDC; Putnam et al., 1993) which measures dissociation in children, using an observer-report checklist.	In step 2, the occurrence of genital touching was included but did not increase the risk of NSSI. Including behaviours of attempted suicide in step 3 increased the risk of self-harm (OR = 5.78, 95% CI [1.62, 20.66]. In step 4, psychiatric treatment history did not increase NSSI (OR = 0,32 [0.60, 1.69]. As such, the results demonstrated that dissociation was significantly associated with NSSI, in adolescent survivors of CSA.	- Turkish version of A-DES showed good test-retest reliability ($\alpha = 0.91$). - Cronbach's alpha for A-DES = 0.89 Limitations: - Sociodemographic factors were not controlled for or considered. - The researchers did not document the use of standardised tools to assess NSSI and CSA. - A relatively small sample size was used.
6	Bolen et al. (Study 6) Affect and State Dysregulation as Moderators of the Relationship Between Childhood Sexual Abuse and Nonsuicidal Self-injury. US 2013 75%	The study aimed to explore insecure attachment styles, state dysregulation, and affect dysregulation as potential mediator variables of child sexual abuse (CSA) and non-suicidal self-injury (NSSI)	The sample consisted of 78 adult survivors of CSA (18 to 57 years old; M = 34.2, SD = 8.7). Participants were either entering or had entered a treatment facility. In terms of sample ethnicities, participants were Caucasian (56%), African American (24%) and Hispanic (15%).	Those who have engaged in NSSI (n = 38) compared to those who have not (n = 40)	Self-injury: was measured using the Self-injurious behaviours questionnaire (SBQ) which was initially developed at the treatment centre but adapted for the current study. It assessed participants' histories of NSSI, treatment and relationship loss (as a result of NSSI), as well as family history of NSSI and suicidality. Attachment: Assessed using the Relatedness Scale Questionnaire (RSQ; Griffin & Bartholomew, 1994) which is a 30 item self-report tool assessing four types of	One-Way ANOVA: As compared with those who did not engage in NSSI ($\bar{x} = .34$), those who did engage in NSSI were less securely attached ($\bar{x} = -.51$, $F = 15.982$, $p < .001$). Those who engaged in NSSI also experienced greater dissociative symptoms ($\bar{x} = .55$, $F = 18.905$, $p < .001$) compared to those who did not ($\bar{x} = -.36$), and experienced greater intrusive post-traumatic symptoms ($\bar{x} = .46$, $F = 12.028$, $p < .001$) compared to those who did not ($\bar{x} = -.28$). (Bolen et al., 2013, p. 204.)	Strengths: - Reliability reported and good for most measures: SBQ ($\alpha = .72$), DES ($\alpha = .94$), IES ($\alpha = .89$), PA ($\alpha = .90$) - As two separate measures assessed stress related trauma (i.e., IES and PAI), exploratory factor analyses were run to establish how most effectively to reflect post-traumatic symptoms. - The findings are original in the sense that no known study, at that time, had reported interaction effects

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
			The gender of participants was not specified. ACEs = CSA		secure and insecure attachment styles. Dissociation: Assessed using the Dissociative experiences scale (DES; Bernstein & Putnam, 1986) which is a self-report 28-itemed tool measuring depersonalisation/derealisation, absorption factor, and amnesic dissociation. PTSD symptoms: was assessed using the Impact of Events Scale (IES; Horowitz et al., 1979) which is a self-report measure used to examine avoidance and intrusive post-traumatic symptoms. Traumatic stress: This was assessed using the Personality Assessment Inventory (PAI; Morey, 1991) which measures a catalogue of adult personality and psychological disorders. The study only used the traumatic stress scale.		between dissociative experiences and PTSD in NSSI. Limitations: - A small sample was used which could affect the power of statistical test used. - Lacks generalisability due to the use of convenience sampling and use of one treatment centre. It is also probable that the population was more representative of individuals with more significant psychiatric pathology. - Inference of causality cannot be proven due to cross-sectional data used.
7	Bornovalova et al. (Study 7) Extending Models of Deliberate Self-Harm and Suicide Attempts to Substance Users: Exploring the Roles of Childhood Abuse,	The study aimed to examine whether post-traumatic stress symptoms explained the relationship between childhood abuse and self-harm and suicidality.	The sample consisted of 180 participants (aged 19 to 61; M =43.05, SD = 9.86) who were inpatients from a drug and alcohol treatment centre. Out of the sample, 72% were male, and 91.4% African American.	No comparison group	Drug and alcohol use: This was assessed through a self-report tool based on the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) and assessed the use of various substances during the last year, and a time period which they rated as using the most.	Path analysis and OR: Results demonstrated that when accounting for use of substances from the last year and the participants' age, there were significant effects of sexual abuse and PTSD symptoms on DSH ($b = 1.720$, $SE .614$, $p < .01$). Results also suggested that PTSD symptoms had a robust relationship with DSH, increasing the odds of those who	Strengths: - Sample primarily composed of men, research in this area is usually dominated by females. - All measures reported good validity and reliability, except the drug use questionnaire that reported adequate reliability.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
	Posttraumatic Stress, and Difficulties Controlling Impulsive Behaviour When Distressed US 2011 75%		ACEs = emotional, physical, and sexual abuse		Childhood abuse: This was assessed using the Childhood Trauma Questionnaire Short Form (CTQ-SF; Bernstein et al., 2003), and only the emotional, physical and sexual abuse subscales were utilised. Impulsive behaviours: This was assessed using the 'difficulties controlling impulsive behaviours subscale' from Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). This measured emotion dysregulation and problems managing impulsivity. PTSD symptoms: These were assessed using the Post-traumatic Stress Disorder Checklist, Civilian Version (PCL; Weathers et al., 1993) which is a self-report measure of all PTSD symptoms experienced in response to a traumatic event. DSH and suicide attempts: This was assessed using specific items from the Self-Harm Inventory (SHI; Stagat et al., 1998).	were survivors of childhood abuse engaging in DSH to greater than five times (ORs 5.57, 95% CIs [1.68, 18.49]).	- The sample used were predominately African American, adding to ethically diverse research. Limitations: - Given the cross-sectional and correlational nature of the data, interpretations of exact relationships between variables cannot be established. - The study did not establish whether PTSD was a result of childhood abuse or an additional traumatic event. - The SHI does not assess specific features of self-harm or suicidal intent and as such, there could have been an overlap between self-harm and suicidal data groups.
8	Brausch & Holaday (Study 8) Suicide-Related Concerns as a Mediator Between Physical Abuse and	To explore the pathways through which childhood abuse confers risk for suicidality and self-harm behaviours	212 participants from introductory psychology classes at a mid-sized university. 73% female; mean age = 18.83 years, SD = 2.26	No comparison group	Childhood maltreatment: The Childhood History Questionnaire (CHQ; Milner, Robertson, & Rogers, 1990) was used to assess participants' self-reported and perceived history of childhood abuse and maltreatment. Only	Bootstrapping Analyses (Brausch & Holaday, 2015, p. 444): Results demonstrated significant direct effects between physical abuse and NSSI ($B = .322, p = .02$) and between physical abuse and suicidality ($B = -.059, p <$	Strengths: - Reports non-significant findings. - CHQ reported good reliability for the current sample $\alpha = 0.92$.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
	Self-Harm Behaviors in College Students US 2015 65%		Ethnicity: 71% Caucasian, 19% African American, 5% Hispanic, 2% Asian, 2% multi-ethnic ACEs = physical abuse		items on physical abuse were included in the analysis. Suicide related concerns: The Reasons for Living Inventory for Adolescents (RFL-A; Osman et al., 1998) is a 32-item measure that assesses reasons adolescents may give for not attempting or dying by suicide. These measure Future Orientation, Suicide Related Concerns, Family Alliance, Peer Acceptance and Support, and Self-Acceptance. History of suicidality and DSH: The Self-Harm Behavior Questionnaire (SHBQ; Gutierrez, et al., 2001) is a brief self-report survey assessing an individual's history of both non-suicidal and suicidal self-injury.	.001). These results suggest that increased physical abuse was associated with higher rates of NSSI, and increased physical abuse was associated with less suicide-related problems. The path between suicidality and NSSI after controlling for physical abuse was significant, ($B = -1.86, p < .001$), whereas the pathway between physical abuse and NSSI became non-significant after controlling for suicidality ($B = .213, p = .11$). Sobel test and Bootstrap analysis (Brausch & Holaday, 2015, p. 444):: The indirect effect was found to be significant, $Z = 2.42, p = .02$. A bootstrap analysis also indicated a significant indirect effect (95% CI [.012, .0251). All of these results suggest that suicidality mediated the association between physical abuse and NSSI.	- Reliability for the current sample was not reported for the other two measures but were found to be reliable and valid in previous studies. Limitations: - Results were ungeneralisable to other populations of adults, including non-students, racially and ethnically diverse individuals, and those with more severe psychopathology. - Self-report measures for all variables introduced a risk of socially desirable responses. - Data were cross-sectional and causality could not be determined.
9	Brown et al. (Study 9) The impact of child maltreatment on non-suicidal self-injury: data from a representative sample of the general population Germany 2018	The study aimed to explore whether depression and anxiety symptoms mediated the relationship between child maltreatment and DSH.	The sample consisted of 2498 individuals ($M = 48.4, SD = 18.2$) from the general German population (aged 14 +) The study reported that sample was representative of the German population in terms of age and gender.	NSSI ($n = 83$) and non NSSI ($n = 2415$)	Childhood maltreatment: Measured using the brief version of the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) – As described previously. NSSI: This was assessed by one question taken from the Behaviour Interview (SITBI, as described previously) in its validated German version (Fischer et al., 2014).	Mediation analyses: Results demonstrated that emotional neglect was not significantly mediated by scores of depression or anxiety. Results showed that emotional abuse was partially mediated by depressive symptoms ($b = 0.03, p = .02$) and anxiety scores ($b = 0.04, p = .01$). Results demonstrated that childhood sexual abuse and childhood physical	Strengths: - Use of systematic random sampling. - Sample being representative of the German population. - All measures (except for NSSI) demonstrated good reliability and validity. Although reliability for physical neglect subscale was $\alpha = .55$.

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	80%		However, ethnicity not reported. ACEs = Sexual, emotional and physical, as well as physical and emotional neglect.		Depressive symptoms: This was assessed using the German version of the screening tool Patient Health Questionnaire (PHQ-2; Kroenke et al., 2003), and focused on the specific depressive symptoms of ‘low mood’ and ‘loss of interest’. Anxiety symptoms: This was measured using the General Anxiety Disorder questionnaire (GAD-2; Spitzer et al., 2007).	neglect were fully mediated by symptoms of depression and anxiety. The direct effects of depression and anxiety on self-harm were both non-significant, however, the indirect effects were: - Sexual abuse (total indirect effect = 0.03, $p = .009$). - Physical neglect (total indirect effect: =0.02, $p = .007$).	Limitations: - NSSI was not reliably measured due to the use of only one item from the SITBI. - The cross-sectional nature of the data does not allow for exact associations between variable to be determined. - Self-report data was used which may lead to issues such as recall bias.
10	Buser & Hackney (Study 10) Explanatory style as a mediator between childhood emotional abuse and nonsuicidal self-injury. US 2012 75%	This study aimed to explore whether self-criticism and a pessimistic explanatory style functioned as mediators between emotional abuse in childhood and self-harm.	The sample consisted of 390 US university students (aged 18-25; $M = 20.3$). The sample primarily consisted of female (66%), heterosexual (95%), and Caucasian (72%) participants. ACEs = Childhood emotional abuse	No comparison group	Childhood emotional abuse: This was assessed using only the ‘Emotional Abusiveness’ subscale from the Exposure to Abusive and Supportive Environments Parenting Inventory (EASE-PI; Nicholas & Bieber, 1997). Pessimistic explanatory style: This was measured using the Attributional Style Questionnaire for General Use (ASQ-GU; Dykema et al., 1996). NSSI: This was measured by one section of the Functional Assessment of Self-Mutilation (FASM; Lloyd-Richardson et al., 2007), which assessed the frequency and methods of self-harm used in the past 12 months.	Mediation Analyses: Results demonstrated that pessimistic explanatory style partially mediated the childhood emotional abuse and self-harm relationship. Although this relationship remained significant in the third regression analysis ($B = .06$, $b = .24$, $p < .001$), this association was smaller than when compared to the second mediation analysis ($B = .07$; $b = .28$, $p < .001$). A Sobel Test determined that the mediation effect was significant ($z = 3.97$, $p < .001$).	Strengths: - Use of simple random sampling. - Results have clinical implications in the sense that interventions that address the explanatory style of those that self-harm, should be considered. - Measures of childhood emotional abuse and pessimistic explanatory style have good reliability ($\alpha = .94$; $\alpha = .87$, respectively). Limitations: - Cross-sectional design means it is impossible to establish the temporal precedence of the variables included in the study.

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							- There was a low response rate for the study (14%), which raises questions of generalisability with regard to the population studied.
11	Caron et al. (Study 11) Exploring the Relationship Between Child Maltreatment, Intimate Partner Violence Victimization, and Self-Injurious Thoughts and Behaviours. Canada 2017 65%	To explore whether intimate partner violence (IPV) victimisation would mediate the relationship between child maltreatment and NSSI.	The sample consisted of 406 adults ($M = 19.87$, $SD = 1.72$) studying psychology at university. The sample was comprised of 346 females, 78% were of European heritage and 93% were not married. ACEs = Sexual abuse, physical abuse, psychological maltreatment, neglect, and witnessing family violence.	No comparison group	Measure of child maltreatment: This was assessed using the Comprehensive Child Maltreatment Scale for adults (Higgins & McCabe, 2001) which is a 22-item self-report tool that assesses sexual, physical and psychological abuse, as well as experiences of neglect and witnessing family violence. Measure of IPV victimization: This was measured using the Revised Conflict Tactics Scales (Straus et al., 1996) which is a 78-item self-report measure of various characteristics of IPV. For the purpose of the study, only the items measuring victimisation were administered. Measure of NSSI: This was measured using the Ottawa Self-Injury Inventory (OSI; Cloutier & Nixon, 2003) which is a self-report tool which assesses of current and past NSSI. For the purpose of the study, only one item was used to assess NSSI in the last 6 months.	Mediation Analyses: Results indicated that childhood abuse was directly associated with IPV victimisation ($b = 1.282$, $p < .001$) and NSSI ($b = .062$ ($p < .001$). Furthermore, IPV victimisation was also directly associated with NSSI ($b = .02$, $p < .01$). The indirect effect of IPV victimisation on the association between childhood abuse and self-harm was significant ($b = .27$, $p < .01$). Although childhood abuse remained a significant predictor of self-harm after controlling for IPV victimisation, the strength of the association was significantly reduced, suggestive of partial mediation.	Strengths: - First paper to investigate the association between childhood abuse, IPV and NSSI. - Reported non-significant results. - Measures of child maltreatment and IPV victimisation reported good reliability ($\alpha = .94$; $\alpha = .98$ respectively). - The OSI reported adequate test-retest reliability and good internal consistency. - Limitations: - As the data used was cross-sectional, no definitive conclusions can be drawn regarding direction of causality. - Lacks generalisability to wider populations, such as non-student young males. - Child maltreatment data was obtained using a retrospective self-report measure, which leads to problem such as subjective memory and recall biases.
12	Chaplo et al. (Study 12)	The study examined whether emotion	The sample consisted of 525 participants (ages	No Comparison group	Trauma exposure and PTSS: This was measured using the	Regression Analyses:	Strengths:

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	The Roles of Emotion Dysregulation and Dissociation in the Association Between Sexual Abuse and Self-Injury Among Juvenile Justice–Involved Youth US 2015 60%	dysregulation (ED) explained the relationship between childhood sexual abuse (CSA) and NSSI, over and above, other variables such as dissociation.	12-18; M = 16.11, SD = 1.31), recruited from a detention centre in the US. Participants were made up of 133 girls & 392 boys, and 56.6% of the sample was White/Caucasian. ACEs = CSA		University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index-Adolescent Version (Steinberg et al., 2004) which examines lifetime traumatic experiences. Dissociation: The was assessed using the Adolescent Dissociative Experiences Scale (ADES; Armstrong et al., 1997) which is a 30-item self-report tool developed to measure four facets of dissociation: amnesic dissociation, absorption/imaginative involvement, depersonalisation/derealisation, and passive influence. Emotion Dysregulation: The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) – as described previously. NSSI: This was measured using The Lifetime Suicide Attempt Self-Injury Count (Linehan & Comtois, 1996) which measures children and adolescents engagement in self-harm and suicidal injury.	Results showed that CSA was significantly associated with ED ($B = 13.01$, $SE = 4.24$, $p < .01$), ED was significantly associated with dissociation ($B = .04$, $SE = .01$, $p < .001$) and dissociation was significantly associated with NSSI ($B = .22$, $SE = .01$, $p < .01$). Although reduced, the direct effect between SA and NSSI remained significant even with the introduction of dissociation and ED ($B = 1.88$, $SE = .37$, $p < .001$), which is consistent with partial mediation. Bootstrapping: Results were suggestive of partial mediation, when both emotion dysregulation and dissociation were included in the analysis ($B = 0.12$, 95% CI [0.03, 0.31]). Neither emotion dysregulation ($B = 0.04$, 95% CI [−0.13, 0.58]) nor dissociation ($B = −0.002$, 95% CI [−0.15, 0.13]) acted as mediators when one variable was controlled for the other.	- Reported reliability of measures used for dissociation and emotion dysregulation which were both excellent ($\alpha = .94$; $\alpha = .92$ respectively). Limitations: - As the data used was cross-sectional, no definitive conclusions can be drawn regarding direction of causality. - Data were all based on self-report measures, raising issues regarding subjective and memory biases. - There was only a small sample of boys who were survivors of CSA, which may have limited the power of the statistical analysis.
13	Dodd et al. (Study 13) Borderline personality disorder symptoms as mediational	The aim of the study was to assess whether childhood trauma predicted NSSI directly, as well as indirectly, predicts NSSI via borderline	The sample consisted of 130 women who were diagnosed with bulimia nervosa (BN). The sample consisted primarily of Caucasian women (96.9%), and	No comparison group	Childhood trauma: CTQ (Bernstein et al., 1994) was used, as described previously. Borderline personality disorder (BPD) symptomatology: This was assessed using the diagnostic interview for BPD, revised (DIB-	Path analysis: Only atypical cognitions predicted self-harm, with the indirect path from childhood abuse to self-harm via atypical cognitions, being significant (path coefficient = .001, $SE < .001$, $p = .01$). Exploratory correlation analyses:	Strengths: - Use of a clinical sample - Advanced statistical techniques. - A semi structured clinical interview was used for measurement

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	mechanisms linking childhood trauma and nonsuicidal self-injury among women with bulimia nervosa (BN). United States (US) 2021 65%	personality disorder symptomatology.	69.2% of them were aged between 18 and 25. ACEs = Physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.		R; Zanarini et al., 2002) which is a semi structured interview assessing BPD symptomatology. NSSI: For this variable, information was obtained using an ecological momentary assessment (EMA). Participants were given information at the beginning of the study containing 18 self-damaging behaviours, and were asked to begin an EMA whenever they engaged in any behaviours listed. It included a variety of NSSI methods.	Thought broadcasting was significantly correlated with NSSI when assessed over the lifetime ($p = .340$, $p = .01$) and in the last two years ($p = .259$, $p = .00$). Delusions of guilt or sin was significantly correlated with NSSI when assessed over the lifetime ($p = .299$, $p = .00$) and in the last two years ($p = .299$, $p = .00$). Visual hallucinations were significantly correlated with NSSI when assessed over the lifetime ($p = .190$, $p = .03$) and in the last two years ($p = .190$, $p = .03$). Lifetime (but not past 2-year) telepathy was significantly associated with NSSI ($p = .213$, $p = .01$). Past 2-year (but not lifetime) overvaluing of ideas ($p = .178$, $p = .04$), delusions of persecution ($p = .177$, $p = .04$), and delusions of grandeur ($p = .192$, $p = .03$) were significantly correlated with NSSI.	of BPD symptomatology. - The study used a research design that allowed for likely prediction of engagement in NSSI from the DIB-R. Limitations: - Caution should be used when generalising results to other racial and cultural populations, as the sample consisted predominately of Caucasian and American individuals. - The data used was obtained almost 20 years prior to the study, and as such, does not reflect societal shifts since then. - The sample size was reasonably small given the method of statistical analysis used.
14	Franzke et al. (Study 14) Dissociation as a Mediator of the Relationship Between Childhood	This study aimed to explore the mediating properties of dissociative experiences, posttraumatic stress, and symptoms of	The sample consisted of 87 female participants (aged 18 to 66; $M = 41.32$, $SD = 12.08$) and were recruited from a specialist trauma inpatient service.	NSSI group ($n = 42$) and Non NSSI group ($n = 45$)	NSSI: This was assessed by a self-report measure created by the inpatient service and obtained information regarding the participants' history and various characteristic of NSSI.	Mediation analyses: Dissociative symptoms had a direct, significant effect on NSSI ($\beta = .42$, $p < .05$). Indirect effects were estimated:	Strengths: - Well-established measures used but validity and reliability was not reported. - Non-significant results reported.

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	Trauma and Nonsuicidal Self-Injury in Females: A Path Analytic Approach Germany 2015 70%	depression on the relationship between adverse childhood experiences and self-harm.	All participants were White/Caucasian. Participants were excluded if they had an active psychotic illness, acute substance misuse/dependence, and acute suicidal ideation/intent. ACES = Emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect.		Childhood Trauma. Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) was used and as described previously. Dissociative symptoms: This was measured using the Fragebogen für Dissoziative Symptome (FDS-20; Spitzer, Michels, Siebel, Gänssicke, & Freyberger, 2004; adapted from the Dissociative Experiences Scale, Bernstein & Putnam, 1986). This is a self-report 20 itemed tool that measures dissociative symptoms from the last two weeks. Posttraumatic symptoms: This was assessed by the Posttraumatic Stress Diagnostic Scale (PDS; Steil & Ehlers, 2000; adapted from Foa, 1995). IT is assessed the occurrence of PTSD symptoms, including those at a diagnostic level. Depressive symptoms: This was assessed using the Beck Depression Inventory (BDI; Hautzinger et al., 1994; adapted from Beck & Steer, 1987) and measured the severity of the symptoms of depression.	- Childhood trauma on NSSI via dissociation ($\beta = .14, p < .05$). - Childhood trauma on NSSI via PTS symptoms ($\beta = .07$, non-significant). - Childhood trauma on NSSI via depressive symptoms ($\beta = .05$, non-significant). Bootstrapping: The significance of the childhood trauma, dissociation and NSSI association was supported by both the 95% and 99% confidence [0.01, 0.40] and [0.04, 0.34].	Limitations: - Self and retrospective reports of childhood trauma raise concerns in relation to inaccurate reporting of events. - The relatively small size may have affected the power of the statistical analysis used. - As the data used was cross-sectional, no definitive conclusions can be drawn regarding temporal relations across variables.
15	Gao et al. (Study 15) The Effects of Childhood	This study aimed to explore the independent and interactive effects of MAOA gene, COMT gene, and childhood	The sample was comprised of 269 male students (mean age = 14.72, SD = 0.92).	No comparison group	Child abuse and neglect: This was assessed using the Chinese version of the Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 2003), as described previously.	Regression analysis: For childhood abuse, MAOA and COMT were not significantly related with self-harm, but they both acted as moderators for the effects of childhood maltreatment	Strengths: - Used valid and reliable measures. - This was the first study to investigate the role of genetics in the interaction

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	Maltreatment on Non-Suicidal Self-Injury in Male Adolescents: The Moderating Roles of the Monoamine Oxidase A (MAOA) Gene and the Catechol-O-Methyltransferase (COMT) Gene China 2021 60%	maltreatment on self-harm in an adolescent population.	Participants were recruited from four high schools in China. ACEs = emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect.		NSSI: This was measured using the Adolescents Self-Harm Scale (DSHS; Feng, 2008) which contains 19 items and a checklist of self-harm behaviours, which participants need to rate in terms of their engagement. Genotyping: Samples of saliva were obtained from participants for purposes of genomic DNA extraction.	on self-harm ($\beta = 0.35, t = 3.00, p < 0.01$) and $\beta = 0.42, t = 3.7, p < 0.01$) Results demonstrated a significant three-way interaction between the MAOA genotype, the COMT genotype and childhood maltreatment ($\beta = -0.34, t = -3.22, p < 0.01$). Simple slopes analysis: There was a non-significant relationship between childhood abuse and self-harm in Met/T genotypes carriers ($\beta = 0.12, t = 0.59, p > 0.05$). In the carriers of other combined genotypes, the score of childhood maltreatment positively predicted self-harm: - Met/G carriers ($\beta = 0.81, t = 7.53, p < 0.001$). - Val/Val/T carriers ($\beta = 0.65, t = 5.70, p < 0.001$). - Val/Val/G carriers ($\beta = 0.28, t = 2.14, p < 0.05$). In terms of MAOA, COMT and childhood neglect, the main effect was non-significant ($\beta \leq 0.13, t \leq 1.10, p > 0.05$) or significant two-way ($\beta \leq 0.21, t \leq 1.64, p > 0.05$) or three-way interactions ($\beta = -0.18, t = -1.34, p > 0.05$). (Gao et al., 2021, p. 7)	between childhood abuse and NSSI. - Non-significant results reported. Limitations: - Only a relatively minor interaction effect was found in the study. - Drawn from a rural sample of Chinese males, cannot be generalised to other populations. - The cross-sectional design made it difficult to establish the direction of the complex relations between genetics, environment and behaviour.
16	Garbutt (Study 16)	This study aimed to explore the roles of shame, self-	The sample consisted of 1,111 participants (aged 18 to 95 years old). It	No comparison group	ACEs: These were assessed by administrating the Maltreatment and Abuse Exposure (MAES) scale	Structural Equation Modelling: <i>Overall sample</i> (Garbutt, 2019, p.116):	Strengths:

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	Childhood adversity, shame and self-compassion, and their relationship with harm. England 2019 75%	compassion and childhood adversity have in relation to the risk of harm to self and others.	was comprised of females (45%), males (49%) and non-binary individuals (2%). A further 4% of participants did not disclose their gender. The sample was predominantly white British/Irish (74%). Adults were recruited from the community, four male prisons and one female prison, with approximately one-third of the sample (n= 331) being recruited from prisons. ACEs = sexual abuse, physical abuse, emotional abuse, physical and emotion neglect. Also witnessing the abuse of another.		(Teicher & Parigger, 2015) which is comprised of 52 self-report items which assess one's general exposure to various subtypes of childhood maltreatment. NSSI: Self-harm was assessed using the SHI (Sansone et al., 1998) as described previously. Shame: This was measured using the Compass of Shame Scale (CoSS; Elison et al., 2006). The tool includes twelve situations which are devised to induce shame in the respondents, who are then asked to answer four questions which measures how the participant may respond to the shame in four dimensions: withdrawal, avoidance, attack self and attack other. Self-compassion: This was assessed using the Self Compassion Scale (SCS; Neff, 2003). Out of a total of 26 items, only 13 items which assessed self-compassionate attitudes were included. The items ask the individual how often they act in particular ways towards themselves, with them rating their responses on a 5-point Likert scale.	In this sample, shame attack self ($\beta = .319$, 95% CI [.244, .406], $p = .002$) and shame withdrawal ($\beta .110$, 95% CI [-.030, .185], $p = .014$) were directly related to NSSI. The indirect path from childhood maltreatment to NSSI increased via shame attack self ($\beta = .033$, 95% CI [.024, .043], $p = .010$) and shame withdrawal ($\beta .011$, 95% CI [.003, .020], $p = .005$). (Garbutt, 2019, p.116) <i>Male sample</i> (Garbutt, 2019, p.118): In this sample, shame attack self ($\beta = .314$, 95% CI [.233, .383], $p = .005$) had a direct path to NSSI. The indirect path from childhood maltreatment to NSSI was increased via shame attack self ($\beta = .033$, 95% CI [.024, .043], $p = .003$). <i>Female sample</i> (Garbutt, 2019, p.118): In this sample, shame attack self ($\beta = .294$, 95% CI [.216, .365], $p = .004$) and self-compassion ($\beta = -.167$, 95% CI [-.253 to -.090], $p = .004$) had a direct path to NSSI. The indirect path from childhood maltreatment to NSSI was increased via shame attack self ($\beta .028 = 95\%$ CI [.020 to .040], $p = .002$) and also through self-compassion ($\beta = .012$, 95% CI [.006, .020], $p = .003$). Therefore, results demonstrate that both shame and self-compassion have a partial mediating effect in the ACEs and self-harm association.	- Used power analysis to establish needed number of participants. - Large sample (n=1111) - Use of valid and reliable measures. - Inclusion of prison and community samples. Limitations: - Given the study used cross-sectional data, there are difficulties proving temporal relationships between variables. - Measures used were self-report, meaning people may have given more sociably desirable answers. They are also dependent on the individual having self-awareness and a willingness to be open and honest. - The sample lacks diversity given that most of the sample were White British males.

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17	Gomez (Study 17) High Betrayal Adolescent Sexual Abuse and Nonsuicidal Self-Injury: The Role of Depersonalization in Emerging Adults US 2019 70%	This study aimed to investigate the impacts of adolescent sexual abuse and high betrayal adolescent sexual abuse on self-harm, with a particular focus on the role of depersonalisation.	The final sample consisted of 192 students ($M_{age} = 19.81$, $SD = 2.61$) from a US university. Of the sample, 65% were female and 71% White/Caucasian). ACEs = Sexual abuse.	No comparison group	Sexual abuse: This was assessed using the Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006) but was adapted to contain sexual abuse items only at three developmental intervals. It assessed sexual abuse across childhood, adolescence and adulthood. Dissociation: This was measured using the Curious Experiences Survey (CES; Goldberg, 1999) which is a revised version of the Dissociative Experiences Scale (Bernstein & Putnam, 1986). The CES is a self-report 31 itemed tool which specifically measures depersonalisation, absorption, and amnesic dissociation. Self-harm: The tool was a modified version of the Deliberate Self-Harm Inventory (Gratz, 2001), which consisted of 17-items which measured various forms of NSSI.	Mediation Analyses: High betrayal adolescent sexual abuse (HBASA) was significantly associated with depersonalisation ($B = .4047$, $p = .004$) and depersonalisation was significantly associated with NSSI ($B = .0913$, $p = .0074$). HBASA was no longer significantly associated with NSSI after controlling for depersonalisation ($B = .0334$, $p = .5877$), which suggests a full mediation effect. The indirect effect of HBASA on NSSI through depersonalisation was $B = .0369$ (95% CI [.0049, .1116]). This was while controlling for CSA, adult sexual abuse, and medium betrayal adolescent sexual abuse. Therefore, depersonalisation fully mediated the HBASA- NSSI relationship.	Strengths: - Participants selected to take part in the study without prior knowledge of the topic (they only knew practical information such as that it was online). This approach enabled a more random sample as it protects against self-selection bias. - DSHI reliability for sample was reported and very good ($\alpha = .88$). - For the CES, internal consistency was considered excellent ($\alpha = .94$). - For the CES, the internal consistency for the depersonalization subscale was adequate ($\alpha = .78$). Limitations: - As the study used cross-sectional data, causality and developmental onset of depersonalisation and NSSI cannot be established. - The current sample consisted of US university students and therefore, caution should be used when applying the findings to other populations, such as clinical populations who are arguably, more traumatised in nature.

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18	Gratz (Study 18) Risk Factors for Deliberate Self-Harm Among Female College Students: The Role and Interaction of Childhood Maltreatment, Emotional Inexpressivity, and Affect Intensity/Reactivity US 2006 70%	The study aimed to test a model which examined the roles of childhood abuse, emotional inexpressivity, affect intensity/reactivity and self-harm.	The sample consisted of 249 female students (aged 18 to 55, $M = 23.29$, $SD = 5.96$) from undergraduate psychology courses at a US university. The sample was predominately White/Caucasian (66%), single (88%) and heterosexual (91%). ACEs = All child maltreatment.	No comparison group	Deliberate self-harm: This was assessed using the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001) – as described previously. Childhood abuse: This was assessed using The Abuse-Perpetration Inventory (API; Lisak et al., 2000) which is a self-report measure used to assess childhood physical and emotional abuse. Parental behaviour: This was assessed using the Parental Bonding Instrument (PBI; Parker et al., 1979) which has a self-report 25 itemed questionnaire used to assess various characteristics and experiences associated with parental relationships. Emotional Expressivity: This was assessed using the Emotional Expressivity Scale (EES; Kring et al., 1994) and it is a 17-item self-report tool which measures characteristics of emotional expressivity. Intensity and reactivity of emotional responses: This was assessed using the Affect Intensity Measure (AIM; Larsen & Diener, 1987) which is a self-report 40-item questionnaire which measures participant's emotion predispositions in terms of affect intensity and reactivity.	Structural Equation Modelling: The overall model predicted the frequency of self-harm amongst adult females who have a history of self-harm was significant, accounting for 15% of the variance in incidences of self-harm, $F(12, 78) = 2.32$, $p = .05$. In addition to this, emotional inexpressivity had a significant main effect on self-harm frequency ($\beta = .28$, $p < 0.05$). (Gratz, 2006, p. 245). The 3-way interaction with low positive affect intensity/reactivity was a significant predictor of self-harm frequency ($b = 0.39$, $p < 0.05$) and the 3-way interaction with negative affect intensity/reactivity was a marginally significant predictor ($b = 0.37$, $p < .06$). (Gratz, 2006, p. 245). Results showed that in a population of women who engage in self-harm, emotional inexpressivity is related to more frequent self-harm, as is the interaction between increased maltreatment, increased inexpressivity, and decreased positive affect intensity/reactivity ($b = .39$, $p < .05$)	Strengths: - Response rate of response rate of 78%. - Adequate and above reliability and validity data reported for all measures. Limitations: - The data was obtained from self-report measures of childhood abuse, raising issues to do with retrospective bias and accurate reporting. - The participants were not blind to the aim of the study, which may have led to self-selection bias.

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19	Green & Webster (Study 19) The Relationships Between Childhood Abuse and Neglect, Sub-clinical Symptoms of Psychosis and Self-harm in a Non-clinical Community Sample. UK 2021 70%	This study aimed to investigate the relationship between adverse childhood experiences (ACEs), sub-clinical positive symptoms of psychosis and self-harm.	The sample consisted of 528 participants (73.5% female, 22.7% male and 3.8% identified as other gender) recruited from an online survey. In terms of the male sample, the mean age was 25.2 years old (SD = 7.8 years) and in the female sample, the mean age was 27.4 years old (SD = 8.6 years) The sample was obtained across 36 countries, although participants were predominately from the United States (41.9%) and the UK (32.8%) were from the UK. ACEs = sexual abuse, physical abuse, emotional abuse, physical and emotion neglect.	No comparison group.	Childhood abuse and neglect: This was measured using the Adverse Childhood Experiences International Questionnaire (ACE-IQ; World Health Organization, 2018) which assesses all forms of childhood abuse and experiences. Symptoms of psychosis: These were measured using The Community Assessment of Psychic Experiences (CAPE-42; Konings et al., 2006) which is a self-report tool developed to recognise subclinical symptoms of psychosis. For the purpose of the study, only the subscales of ‘voices and visions’ and ‘delusional ideations’ were used. Self-harm: Assessed using the DSHI (Gratz, 2001) as described previously.	Parallel mediation model: The effect size of childhood abuse on NSSI decreased when the indirect effects through voices and visions ($B = 2.219, p < 0.0001$) and delusional ideation ($B = 1.215, p < 0.0001$). They both remained statistically significant which is suggestive of partial mediation. The bootstrapped indirect effect of childhood abuse on NSSI were also both significant through delusional ideation ($B = 0.645, SE = 0.151, 99\% CI = [0.318 - 1.112]$), and through voices and visions ($B = 0.360, SE = 0.154, 99\% CI [0.076 - 0.883]$).	Strengths: - All measures used were reliable and valid. - The study used a large sample size. - The researchers conducted a power calculation before the data collection stage. Limitations: - The data collected for purposes of childhood abuse information was retrospective, and therefore, subject to recall, memory and subjective biases. - The use of cross-sectional data means that causal relationships cannot be established - As the sample was mainly comprised of western countries such as the US and UK, the results have limited generalisability to other populations.
20	Gu et al. (Study 20) Childhood emotional abuse	This study aimed to test a moderated mediation model which examined	The final sample consisted of 949 participants recruited from two Junior high	No comparison group	NSSI: Participants were asked whether they had engaged in seven forms of NSSI in the last 12 months.	Bootstrapping analysis (Gu et al., 2020, p.4): Results demonstrated that childhood emotional abuse and NSSI relationship,	Strengths: - Use of Random cluster sampling helps reduce potential for human bias.

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	and adolescent nonsuicidal self-injury: The mediating role of identity confusion and moderating role of rumination China 2020 80%	childhood emotional abuse, identity confusion, and rumination in relation to NSSI.	School students in China (aged 11 to 16 years old; $M_{age} = 13.35$ years, $SD = 1.02$) The sample was made up of 50.9% females. ACEs = Emotional abuse		Emotional abuse: This was measured by the 'psychological abuse' subscale from the Child Psychological Abuse and Neglect Scale (CPANS; Deng et al. 2007). Identity confusion: This was measured using just the 'identity' subscale from Erikson Psychosocial Inventory (ESPI; Rosenthal et al. 1981). Rumination: This was assessed using the Ruminative Response Scale (RRS-10; Treynor et al., 2003) which is a self-report tool containing 10 questions.	was partially mediated by identity confusion (indirect effect = 0.07, $SE = 0.01$, 95 % CI [0.05, 0.10]). Furthermore, the mediation effect contributed to 19% of the total effect ($b = 0.37$, $SE = 0.03$, 95 % CI [0.31, 0.43]). Moderated mediation effect (Gu et al., 2020, p.5): Emotional childhood abuse was significantly related to identity confusion ($b = 0.31$, $SE = 0.03$, $p < 0.001$), but the relationship between rumination and identity confusion was non-significant ($b = -0.00$, $SE = 0.03$, $p > 0.05$). Rumination significantly moderated the effect of emotional childhood abuse on identity confusion ($b = 0.07$, $SE = 0.03$, $p < 0.01$) and self-harm ($b = 0.07$, $SE = 0.03$, $p < 0.05$). Rumination accounted for 19.9% of the variance in self-harm and identity confusion, and emotional childhood abuse accounted for 15.3% of self-harm and identity confusion variance. Simple slopes analysis to determine rumination's moderation effects (Gu et al., 2020, p.5): Within the high rumination condition, the association between emotional childhood abuse and identity confusion was significant ($\beta_{simple} = 0.38$, $t = 8.56$, $p <$	- Large sample size. - No students declined to take part in the study so no issues with response bias. - Tested reliability for all measures used with the current sample and all were $\alpha > 0.70$. Limitations: - Self-report measures were used to collect data. Given that NSSI is not deemed as a socially acceptable behaviour, participants may have denied their engagement in NSSI, potentially affecting the reliability of the results. - Conducted data analysis using a cross-sectional design, therefore causality cannot be inferred.

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						0.001). This association had decreased, though remained statistically significant, in the low rumination condition ($\beta_{\text{simple}} = 0.24$, $t = 5.30$, $p < 0.001$). In adolescents who scored as high ruminators, higher levels of emotional childhood abuse were significantly related to increased levels of self-harm ($\beta_{\text{simple}} = 0.33$, $t = 7.47$, $p < 0.001$). In adolescents who scored as low ruminators, the relationship between emotional childhood abuse and self-harm ($\beta_{\text{simple}} = 0.20$, $t = 4.43$, $p < 0.001$) was a lot less. The indirect effect of identity confusion was higher for participants who scored higher in terms of rumination ($b = 0.08$, $SE = 0.02$, 95 % CI [0.05, 0.12]), compared to participants who scored lower in terms of rumination ($b = 0.05$, $SE = 0.01$, 95 % CI [0.03, 0.08]). The moderated mediation effect was significant ($b = 0.02$, $SE = 0.01$, $p < 0.05$), suggesting that rumination strengthened the mediating effect of identity confusion within the emotional childhood trauma and self-harm relationship.	
21	Gu et al. (Study 21) Childhood maltreatment and non-suicidal self-injury in prisoners:	This study aimed to examine the mediating effect of psychopathy, and the moderating effect of cognitive reappraisal,	The sample consisted of 1042 male prisoners (aged 20 to 71 years old; $M_{\text{age}} = 38.45$, $SD = 10.67$).	No comparison group	NSSI: This was assessed with one question, which asked if the participants had engaged in various forms of self-harm behaviour, which was adapted from the Inventory of Statements About	Testing for mediation (Gu et al., 2021, p.5): Childhood abuse was positively related to psychopathy ($b = 0.30$, $SE = 0.03$, $p < 0.001$), which was positively associated	Strengths: - Results emphasise the detrimental effects of childhood abuse and psychopathy in terms

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	the mediating role of psychopathy and moderating role of cognitive reappraisal. China 2021 75%	on the relationship between childhood abuse and NSSI in male prisoners.	Participants were recruited from two medium security prisons in China. Of the sample, 57.8% had been convicted of non-violent offences. ACEs = Physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.		Self-Injury (ISAS; Klonsky & Glenn, 2009), as described previously. Childhood maltreatment: CTQ (Bernstein et al., 1997), as described previously. Cognitive reappraisal: This was measured using the ‘cognitive reappraisal’ subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Psychopathy: This was assessed using the ‘psychopathy subscale’ of the 12-item Dirty Dozen (DD; Jonason & Webster, 2010).	with self-harm ($b = 0.17$, $SE = 0.03$, $p < 0.001$). After accounting for the mediation effect of psychopathy, the direct effect of childhood abuse on self-harm remained significant ($b = 0.31$ $SE = 0.03$, $p < 0.001$). Bootstrapping (Gu et al., 2021, p.5): Findings demonstrated a significant indirect effect (indirect effect = 0.05, $SE = 0.01$, 95% CI [0.02, 0.08]). The indirect effect accounted for 13.9% of the total effect ($b = 0.36$, $SE = 0.03$, $p < 0.001$) of childhood abuse on self-harm. Testing for moderated mediation effect (Gu et al., 2021, pp.5&6): Simple slopes analyses revealed that for participants with low cognitive reappraisal skills, psychopathy significantly predicted self-harm ($b_{\text{simple}} = 0.25$, $t = 6.62$, $p < 0.001$). Although, for participants with high cognitive reappraisal skills, the relationship between psychopathy and self-harm was non-significant. Further analyses demonstrated that the indirect effect of psychopathy was significantly increased for participants with low cognitive reappraisal skills (indirect effect = 0.08, $SE = 0.02$, 95% CI [0.04, 0.12]), when compared to participants with high cognitive reappraisal (indirect effect = -0.00, $SE = 0.02$, 95% CI [-0.04, 0.03]).	of self-harming behaviours. - The DD is a succinct and effective assessment for the Dark Triad construct. - Results suggest that strategies for teaching cognitive reappraisal skills to incarcerated males may be efficient in reducing self-harm. - All measures were valid and reliable in the research population ($\alpha \geq 0.75$) Limitations: - The study relied on participants’ retrospective accounts. Self-harm is a stigmatised behaviour, so the participants’ accounts may have been unreliable. - The sample was not representative of general Chinese prison population (or prison populations from other countries/cultures), as it was limited to two male prisons in China, - The ‘psychopathy’ subscale taken from the DD does not measure particular

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						The moderated mediation effect was -0.04 ($SE = 0.01$, 95% CI $[-0.07, 0.01]$), suggesting that cognitive reappraisal skills significantly reduced the indirect effect of psychopathy in the relationship between childhood abuse and self-harm.	traits thought to be fundamental to psychopathy which may decrease the subscale's convergent validity.
22	He & Xiang (Study 22) Child maltreatment and nonsuicidal self-injury among Chinese adolescents: The mediating effect of psychological resilience and loneliness. China 2022 75%	The study aimed to examine the mediating effect of psychological resilience and loneliness in the child maltreatment and NSSI association.	The sample consisted of 2098 students (995 boys & 956 girls) who were recruited from four schools in China. The participants' ages ranged from 8-19 years old ($M_{age} = 12.93$, $SD = 2.54$) ACEs = Physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.	No comparison group	NSSI: This was assessed by a scale developed by You et al. (2016) and was used to measure the occurrence of 10 different methods of NSSI. Childhood Maltreatment: Measured using the CTQ (Bernstein et al., 1997), as described previously. Psychological resilience: This was measured using the Connor-Davidson Resilience Scale (Campbell-Sills & Stein, 2007) and consisted of 10 items related to characteristics of resilience, which participants had to rate their relevance on a 5 point Likert scale. Loneliness: This was assessed using the UCLA Loneliness Scale (Hays & Dimatteo, 1987) which consisted of 8-items to measure both emotional and social loneliness.	Bootstrapping analysis (He & Xiang, 2022, p.4): Results demonstrated that psychological resilience (95% CI $[0.004, 0.042]$) and loneliness (95 % CI $[0.016, 0.069]$) had a significant mediating effect on the childhood abuse and self-harm association. In the group of primary school students, only childhood abuse had a direct positive effect on self-harm ($\beta = 0.49$, $p < .001$), and the direct effects of psychological resilience ($\beta = 0.004$, $p = .941$) and loneliness ($\beta = 0.13$, $p = .134$) on self-harm were non-significant. This invalidated the mediating effects of psychological resilience and loneliness. In the group of middle school students, childhood abuse not only directly affected self-harm behaviour ($\beta = 0.48$, $p < .001$), but also indirectly affected it by impacting psychological resilience and loneliness. Bootstrap analyses also verified the mediating effect of psychological resilience (95% CI $[0.001, 0.059]$) and	Strengths: - The results have clinical implications in the form of empirical support for the development of NSSI prevention intervention, such as targeting loneliness and increasing psychological resilience. - The study used a large sample ($n = 2098$) - All measures are valid and shown to be reliable in the current sample. Limitations: - Self-report measures were used, which may lead to biased reporting. - As the data used was cross-sectional, the temporal ordering of constructs cannot be inferred.

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						loneliness (95 % CI [0.004, 0.072]), on the childhood abuse and self-harm relationship. In the high school group of students, childhood abuse affected self-harm directly ($\beta = -0.29, p < .001$), with the bootstrap analysis supporting the mediating role of loneliness (95% CI [0.005, 0.122]).	- As convenience sampling was used in terms of sourcing participants, the data may not be representative of the general Chinese student population. Therefore, caution should be used when generalising results.
23	Holden et al. (Study 23) Childhood trauma and non-suicidal self-injury: Mental pain and depression as mediators in university and community samples? Canada 2022 60%	The study examined whether psychache (i.e., mental pain), acted above and beyond depressive symptoms, in the childhood trauma and NSSI relationship.	The total research sample consisted of 962 participants (533 American participants & 429 university students). In total, there were 680 women, 280 men, and 2 participants who did not identify as a particular gender. In terms of ethnicity for the university population, 76% were Euro-Canadian or Caucasian, and in the American participants, 73% were European or Caucasian. ACEs = Physical abuse, physical neglect,	No comparison group	Self-harm: This was assessed using the DSHI (Gratz, 2001) as described previously. Childhood trauma: This was assessed using the CTQ-SF (Bernstein et al., 2003) as described previously. Psychache (i.e., mental pain): This was measured using the Psychache Scale (PAS; Holden et al., 2001) which is a 13-itemed self-report tool which assesses different components of psychache. Depression: This was assessed with the use of the Beck Depression Inventory-II (BDI-II; Beck et al., 1996) – as described earlier.	A parallel multiple mediation model: <u>Psychache</u> In the student sample: - Psychache statistically mediates the link between childhood abuse and NSSI ($\beta = 0.011, p < .01$), independently of depression. - Psychache statistically mediates the link between emotional abuse and self-harm ($\beta = 0.011, p < .01$). - Psychache statistically mediates the link between physical abuse and self-harm ($\beta = 0.045, p < .05$). - Psychache statistically mediates the link between emotional neglect and self-harm ($\beta = 0.096, p < .01$). - Psychache statistically mediates the link between physical neglect and self-harm ($\beta = 0.048, p < .01$).	Strengths: - All measures used were reliable and valid. - The study used two research samples. - The study used a relatively large overall sample. Limitations: - All measures used were self-report and therefore, dependent on the reliability and accuracy of the participants' responses. - The study used cross-sectional data to test a causal model with multiple variables. - The data collected from the university sample had somewhat

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			emotional abuse, emotional neglect, and sexual abuse.			In the community sample: - Psychache statistically mediates the link between childhood trauma and self-harm ($\beta = 0.147, p < .01$), independently of depression. - Psychache statistically mediates the link between emotional abuse and self-harm ($\beta = 0.103, p < .01$). - Psychache statistically mediates the link between physical abuse and self-harm ($\beta = 0.082, p < .05$). - Psychache statistically mediates the link between emotional neglect and self-harm ($\beta = 0.093, p < .01$). - Psychache statistically mediates the link between physical neglect and self-harm ($\beta = 0.086, p < .01$). - Psychache statistically mediates the link between sexual abuse and self-harm ($\beta = 0.077, p < .01$). <i>Depression</i> In the student sample, depression did not mediate the relationship between childhood trauma and self-harm. In the community sample, depression only mediated the relationship between emotional abuse and self-harm ($\beta = 0.033, p < .05$).	limited ranges for scores of physical and sexual abuse.

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24	Howard et al. (Study 24) From Childhood Trauma to Self-Harm: An Investigation of Theoretical Pathways among Female Prisoners Scotland 2017 65%	This study aimed to explore the mediating roles of PTSD symptoms, emotion regulation and dissociation, in the relationship between childhood trauma and self-harm.	The sample consisted of 89 female prisoners ($M_{age} = 34.52$), the majority of which were British (96.6%). Participants were excluded from the study if they were actively suicidal, had a history of psychotic illnesses, were experiencing a major depressive episode, had a formal diagnosis of an intellectual disability, or were deemed too vulnerable (emotionally and/or physically) to participate. ACES = childhood sexual, physical and emotional abuse and physical and emotional neglect.	Self-Harmers ($n = 52$) & Non-Self-Harmers ($n = 37$)	Childhood trauma: This was assessed using the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998), as described previously. PTSD symptoms: This was assessed using PTSD Checklist (PCL-5; Weathers et al., 2013) which is a 20-item measure which assesses PTSD symptoms, as defined by the Diagnostic Statistical Manual 5 th Edition (DSM-5; APA, 2013) Emotion dysregulation: This was measured using the Difficulties in Emotion Regulation (DERS; Gratz & Roemer, 2004), as described previously. Dissociation: This was assessed using the Dissociative Experiences Scale (DES II; Bernstein & Putnam, 1986), as described previously. NSSI: This was assessed by participants being asked whether they had ever self-harmed by means of various NSSI behaviours.	Individual mediation analyses (Howard et al., 2017, p. 946): Emotion dysregulation (ED) was found to mediate the association between childhood abuse and self-harm (indirect effect = 0.016, 95% CI [0.005,.033], $p = 0.017$). Out of the PCL-5, only the 'alterations in arousal and reactivity' subscale had a significant mediating effect on the childhood abuse and self-harm association (indirect effect = 0.014, 95% CI [0.004–.031], $p = 0.021$). Dissociative symptoms did not have a mediating effect. Multiple mediation analyses (Howard et al., 2017, pp. 946-947): Both the DERS and PCL-5 arousal/reactivity subscale were found to mediate the association between childhood abuse and self-harm (indirect effect = 0.023, 95% CI [0.008–.043]). However, neither the DERS nor the arousal/reactivity subscale mediated the relationship independently. Both ED and dissociation, simultaneously, were found to mediate the relationship between childhood trauma and self-harming behaviour (indirect effect = 0.015, 95% CI [0.002–.036]). Within the	Strengths: - This was the first study to explore mediation pathways to DSH in female prisoners. - Has significant clinical implications: strategies targeting ED and hyperarousal symptoms, in female forensic population with childhood abuse, may be effective in decreasing self-harming behaviours. - Used well-established, valid and reliable measures, although these were not reported. Limitations: - NSSI was entered as a dichotomous variable and therefore, it did not consider variances in methods of NSSI, seriousness of self-harm or frequency of self-harm. - This study focusses on an extremely distinct population, which was relatively small in size. Therefore, the findings are not generalisable outside of the population of British female prisoners.

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						model, neither DERS nor DES made a significant independent contribution, whilst controlling for the other.	- Self-report measures were administered in the context of an interview which may have impacted responses, given NSSI is a somewhat stigmatised behaviour, and childhood abuse is a sensitive and highly emotive issue.
25	Hu et al. (Study 25) Child maltreatment exposure and adolescent nonsuicidal self-injury: the mediating roles of difficulty in emotion regulation and depressive symptoms. China 2023 70%	The aim of this study was to assess whether problems in emotion regulation and depression mediated the relationship between child abuse and NSSI.	The sample consisted of 224 adolescents (aged 12 to 18 years; $M_{age} = 15.30$ years, $SD=1.83$) recruited from a psychiatric inpatient unit in China. Of the total sample, 78.6% were female. Participants were excluded if they had ever received a diagnosis of a schizophrenic disorder, had an intellectual disability, or gross cognitive impairments. ACEs = physical abuse, physical neglect, emotional abuse, emotional neglect and sexual abuse.	There was no comparison group.	NSSI: This was measured by the Clinician-rated Severity of Non-suicidal Self-injury (CRSNSSI; APA, 2013) which examines the severity of various NSSI behaviours carried out by participants in the last 21 months. Childhood Trauma: This was assessed by the Childhood trauma questionnaire-short form (CTQ-SF), as described previously. They used the Chinese version. Emotion Regulation: This was assessed by the Difficulties with Emotion Regulation Scale (DERS, Gratz and Roemer, 2004), as described previously. They used the Chinese version. Depression: This was measured by the Patient health questionnaire-9 (PHQ-9; Kroenke et al., 2001) which assesses the severity depressive symptomatology as categorised by the Diagnostic and Statistical Manual of Mental	Mediation Analysis: Results showed a mediating effect of the DERS and depression on the childhood abuse and self-harm relationship. The total indirect effect was significant ($\beta=0.293$; $p=0.010$), and there was no significant direct effect from childhood abuse to self-harm ($\beta=0.107$, $p = 0.260$). The DERS demonstrated the greatest mediation effect ($\beta=0.195$ ($p=0.010$), and the indirect effect of depression severity was $\beta=0.052$ ($p =0.028$). The indirect effect of DERS on the relationship between childhood abuse and self-harm, through depression severity was $\beta=0.046$ ($p =0.010$).	Strengths: - Each subscale on the CTQ-SF demonstrates good to excellent internal consistency (Cronbach's $\alpha=0.723-0.933$). - The Cronbach's α for the DERS in the current sample was 0.957. - Researchers used the CRSNSSI (DSM-5, APA 2013) as the self-harm measure through a standardised interview, which details the severity of self-harm more efficiently than self-report self-harm questionnaires. Limitations: - As participants were recruited from only one hospital, this

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					Disorders, Fourth Edition (DSM-IV, APA 1994).		impacts the generalisability of the results. - The study used cross-sectional data on DER and depression which makes it difficult to infer the temporal ordering of variables. - Correlational data were used to a model of causality.
26	Huang et al. (Study 26) Childhood Trauma and Non-suicidal Self-Injury Among Chinese Adolescents: The Mediating Role of Psychological Sub-health. China 2022 75%	This study aimed to explore risk factors for NSSI among Chinese adolescents, specifically assessing the roles of childhood trauma and psychological sub-health.	The sample consisted of 778 participants (aged 10 to 17; M_{age} 12.7, $SD = 1.3$) recruited from schools in China. Out of the sample, 50.3% were male and 49.7% were female. Participants were excluded from the study if they had severe mental or physical disorders, or were audio-visually impaired ACEs = Emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse.	Those that engaged in NSSI ($n = 264$) compared to those who did not engage in NSSI ($n = 514$).	NSSI: This was assessed with a screening questionnaire for NSSI (Wan et al., 2011), which included them being asked if they had ever self-harmed, without suicidal intent, and to detail which methods of NSSI they had engaged in (out of 8 methods described). Childhood Trauma (CT): This was assessed by the childhood trauma questionnaire-short form (CTQ-SF), as described previously. They used the Chinese version. Psychological Health State (PHS): This was assessed using the 'psychological health' subscale of the Multidimensional Sub-health Questionnaire of Adolescent (MSQA; Tao et al., 2008). The measure consisted of 39 self-reported items which assessed emotional, behavioural and social	Structural Equation Modelling (SEM): Results showed direct effects of childhood abuse ($\beta = 0.11$, $p < 0.001$) and psychological health state ($\beta = 0.47$, $p < 0.001$) on self-harming behaviour. The indirect effects of child abuse on self-harm were 0.204 ($p < 0.001$), with the total effects being 0.317 ($p < 0.001$). It was approximated that the predictors of childhood abuse and psychological health state explained 28% of its variance ($R^2 = 0.28$). The SEM suggested that childhood abuse positively predicted self-harm (directly and indirectly) via PSH. PSH was found to partially mediate the CT and NSSI.	Strengths: - This was the first study to examine the effect of childhood abuse on the incidence of self-harm from the standpoint of PSH states. - Use of validated and reliable tools. - The screening questionnaire for NSSI ($\alpha = 0.776$) - MSQA showed good reliability ($\alpha = 0.96$.) and validity. Limitations: - The study used a cross-sectional design; therefore, causality cannot be assumed.

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					symptoms of different psychological health states.		- The study only included Chinese adolescents; therefore, the findings cannot be generalised to other countries or cultures. - All variables were assessed using self-report methods, therefore, participants may have exaggerated or attenuated their experiences of trauma exposure.
27	Lev-Wiesel & Zohar (Study 27) The Role of Dissociation in Self-Injurious Behavior among Female Adolescents Who Were Sexually Abused Israel 2014 65%	The study aimed to explore whether dissociative experiences would function as a mediator between CSA and self-injurious behaviour.	The sample consisted of 93 at-risk female adolescents (12 to 18 years old; $M_{age} = 15.14$, $SD = 1.49$) who were recruited from institutions in Israel. 52.7% of participants were recruited from one specific major centre for at-risk girls who were relocated by court order, and the remaining 47.3% of participants were recruited from five other centres. ACEs = CSA	Self-harm group ($n = 59$; 63.4%) and non-self-harm group ($n = 34$; 36.6%).	Demographic variables questionnaire: Data was gathered using a questionnaire which asked for information about the individuals' age, place of birth, date of immigration (if applicable), and any history of childhood abuse. The questionnaire also asked about risk behaviours such as substance misuse, eating disorders, suicidal behaviours, and self-harm. Persistent Dissociative symptoms: This was assessed by Hebrew version of the Dissociative Experiences Scale–Hebrew Version The H-DES (Bernstein & Putnam, 1986; Carlson & Putnam, 1993), as described previously. Peritraumatic dissociative symptoms: This was assessed	MANOVA: <i>Dissociation:</i> In the relationship between CSA and SIB, dissociative experiences played a mediating role, $F(1, 89) = 4.12$, $p < 0.05$. The result suggested that girls who self-harm had higher rates of persistent dissociative experiences when compared to girls who did not self-harm. However, this was only among the girls who had survived CSA ($t(69) = 3.11$, $p < 0.01$). <i>Potency:</i> The findings demonstrated that the only significant association between potency and self-harming behaviour was among girls who has survived CSA, $F(1, 89) = 5.95$, $p < 0.05$. The association was non-significant for girls who had not experienced sexual abuse. <i>Depression:</i> Rates of depression were significantly elevated amongst girls who self-harmed, compared to girls who did not self-harm ($t[85.11] = 3.37$, $p < 0.01$). With	Strengths: - No difference in demographics between the two samples (i.e., self-harmers and non-self-harmers). - The sample included the total number of girls in five main shelters for at-risk adolescent girls in Israel. Therefore, it is substantially representative of this population in Israel. - All measures (except past traumatic events questionnaire) were tested on the current sample in terms of reliability, and all were $> .85$

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					using the Peritraumatic Dissociative Experiences Questionnaire (The PDEQ; Marmar et al., 1997) which aims to quantify peritraumatic dissociative experiences. Depressive symptoms: This was assessed by the Centre for Epidemiologic Studies Depression Scale (The CES-D; Radloff, 1977) which contains 20 self-report items developed to examine depressive symptoms in the non-clinical population. Past Traumatic events: This was assessed by the Traumatic Events Questionnaire (TEQ; Vrana & Lauterbach, 1994) which assesses experiences with nine explicit forms of traumatic events. Potency: This was measured by the Potency Scale (Ben-Sira, 1985) which assesses self-assurance, self-control, and a belief in a fair and well-ordered society.	regard to the childhood sexual abuse and self-harm association, depression was related to self-harm, irrespective of CSA history, $\underline{F}(1, 89) = 4.05, p < 0.05$.	Limitations: - The findings are based on a very particular group of individuals (i.e., at risk female adolescent survivors of CSA, residing in shelters) and therefore, results cannot be generalised to adolescent girls who are not in shelters in Israel. - Participants were interviewed by their assigned social workers, so they may have given more socially desirable answers.
28	Li et al. (Study 28) Psychological Resilience Mediates the Association Between Childhood Maltreatment and Self-Harm Phenotype in	The study aimed to explore the effect of child maltreatment (CM) on the self-harm (SH) phenotype, as well as examine the role of psychological resilience in the	Participants consisted of 5, 724 students (from the 7th and 9th grades) recruited from 3 different schools in China. Out of the sample, 3006 (52.5%) were boys and	No comparison group.	NSSI: Self-harm was assessed using the Chinese version of the Self-Harm Questionnaire (Lang & Yao, 2018) which is a self-report tool which consists of 39 items examining varying types and levels of severity in relation to NSSI. Childhood Trauma: Was assessed by the Childhood trauma	Mediation analysis: Results showed that the indirect effects of physical abuse, emotional abuse, physical neglect, and emotional neglect on all self-harm phenotypes, via psychological resilience, were statistically significant. Bootstrapping Analysis:	Strengths: - The study used a 3-stage, random cluster sampling approach for sample selection, therefore, reducing sampling bias. - Very high response rate (98%).

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	Chinese Early Adolescents. China 2022 100%	pathway from CM to the SH phenotype.	2718 (47.5%) were girls ($M_{age} = 13.5$, $SD = 1.0$) ACEs = Emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse.		questionnaire-short form (CTQ-SF), as described previously. They used the Chinese version. Psychological Resilience: This was measured by the Chinese version of the Connor-Davidson Resilience Scale (CD-RISC; Yu et al., 2011) which assesses tenacity, strength, and optimism.	Results showed that the indirect effect (psychological resilience) of the independent variable (childhood abuse) on the dependent variables (medium levels of self-harm and high levels of self-harm) was statistically significant: - Medium levels of self-harm: $\beta = 0.013$, 95% CI [0.007, 0.020]. The ratio of the mediation effect to the total effect was 22.41%. - High levels of self-harm: $\beta = 0.044$, 95% CI [0.033, 0.055]. The ratio of the mediation effect to the total effect was 10.28%, respectively.	- Use of valid and reliable measures. - Large sample ($n = 5724$). Limitations: - This is a cross-sectional study; therefore, it is difficult to prove causality. - The study included variables which were assessed by self-report tools, therefore, increasing recall bias. - The study sample was limited to one area in China, and therefore, it these findings cannot necessarily be generalised to the whole Chinese population. - Results will not be generalisable to other countries/cultures.
29	Li et al. (Study 29) Research on Relationships between Sexual Identity, Adverse Childhood Experiences and Non-Suicidal Self-Injury among Rural High School	This study aimed to examine the independent and mutual impact of sexual identity and accrued adverse childhood experiences (ACEs) on NSSI.	The sample consisted of 1,810 participants (10 th and 11 th grade students) recruited from a high school in China. In terms of gender, 55.52% were male, and the remaining participants were female.	Three comparison groups were included in the study: (1) LGB ($n = 66$); (2) questioning ($n = 244$); (3) heterosexual ($n = 1500$).	Sexual identity: Sexual identity was assessed by asking participants whether they best identified heterosexual, homosexual, bisexual, or questioning. Adverse childhood experiences: This was assessed by questions based on the Behavioural Risk Factor Surveillance System (BRFSS) ACE module and Kristen	Odd Ratios: Compared with heterosexual students, LGB high school students reported higher rates of self-harm (AOR = 3.250, 95% CI = [1.69, 6.28], $p < 0.01$). Odds for self-harm were increased among participants who had both reported ACEs and identified as LGB (AOR = 2.821, 95% CI [1.51, 5.29], $p < 0.05$).	Strengths: - The study used a large sample size. - The study highlights the need for more interventions to decrease self-harm specifically in those who identify as LGBQ and have survived childhood abuse.

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	Students in Less Developed Areas of China China 2019 65%		Out of the total sample: 5.3% were under the age of 15, 30.55% were 16 years old, 47.9% were 17 years old and 16.25% were 18 years old. ACES = Sexual abuse, physical abuse, household domestic violence, household mental illness & household substance abuse		Clements-Nolle's investigation on the ACE model of American high school students. Non-suicidal self-injury: This was measured with a standardized question from the Youth Risk Behaviour Survey (YRBS) (Centres for Disease Control and Prevention (CDC), 1990), asking whether participants had self-harmed in the past year.	Therefore, participants who identified as LGB and having experienced ACEs, also reported increased rates of self-harm. When compared to heterosexual individuals who had not experienced ACEs, individuals who identified as LGB with a history of ACEs had nearly a three times higher probability of engaging in self-harm.	Limitations: - Findings lack generalisability, due to data only being obtained from 10th and 11th year students from one school in China. They will unlikely be representative of the whole Chinese student population. - There was only a small sample size of LGB students with NSSI (N = 14). - The study only used one question to assess NSSI, and it is not a validated tool (although it is standardised). - Although five subtypes of ACEs were assessed for, some ACEs such as emotional abuse were not accounted for.
30	Low et al. (Study 30) Childhood trauma, dissociation and self-harming behaviour: A pilot study. England 2000 65%	To examine the pre-eminence of dissociation in leading to DSH, and to determine if this was linked to earlier experiences of childhood trauma.	Participants (n = 50) were female inpatients recruited from a high secure hospital in England ACEs = Childhood physical and sexual abuse, physical and emotional neglect, early separations and losses from significant persons and domestic chaos	No comparison group	Dissociative symptoms: The Dissociative Experiences Scale (Bernstein & Putnam, 1986), as described previously. Childhood trauma: This was assessed by the Traumatic Antecedents Questionnaire (TAQ; Herman et al., 1989). This tool assesses various childhood experiences of abuse and household dysfunction.	Path Analysis: The path analysis suggested that there is a clear link between early sexual abuse and later self-harm. A route occurred via an increased likelihood of dissociative experiences. For instance, sexual abuse was significantly associated with dissociative symptoms ($b = .274, p < .05$) and dissociative symptoms was significantly associated with self-harm ($b = .596, p < .05$). In this path analysis sexual abuse remained significantly associated with self-harm ($b = .203, p < .05$) which suggests that there is one (or more)	Strengths: - Characteristic differences between 'consenters' and 'refusers' to participate were reported. - Reliable and valid tool was used to assess dissociation. Limitations: - Sample consisted of women detained in a high secure hospital, meaning it

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					Incidence of DSH: Data for DSH was taken from a previous 30-month incidence study using the same sample (Low et al. 1997).	additional routes because this path was also significant. This is suggestive of a partial mediation effect.	cannot be generalised to other populations. - Data was obtained from 60% of those recruited, and these were generally younger and had spent less time in hospital in comparison to the rest of the sample. Therefore, the results may not be fully representative of that population. - A relatively small sample was used and the use of the path analytic approach should ideally include a larger sample size.
31	Manna et al. (Study 31) Cumulative Childhood Maltreatment and Non-Suicidal Self-Injury: the Mediating and Moderating Role of Perceived Social Support in a Sample of University Students. Italy 2021 65%	This study aimed to examine the mediating and moderating roles of perceived social support (PSS) in the cumulative childhood maltreatment (CCM) and self-harm association.	The sample consisted of 474 Italian students ($M_{age}=21.61$, $SD=1.92$), attending university in Italy. Of the total sample, 73.4% were female, approximately 70% were attending social sciences courses, and 97.2% were unmarried. ACEs = Emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse.	No comparison group	Childhood trauma: Assessed using the CTQ-SF (Bernstein et al., 2003), as previously described. Self-harm: Assessed using the DSHI (Gratz, 2001), as described previously. Perceived social support: This was assessed using the Italian version of the Multidimensional Scale of Perceived Social Support (MSPSS; Prezza & Principato, 2002; Zimet et al., 1988) and measures characteristics of perceived social support from a range of sources (i.e., family, friends, partners etc.)	Mediation model: The main direct effects demonstrated that cumulative childhood maltreatment negatively predicted PSS from family and, at a lower level, PSS from friends. Levels of self-harm were predicted by PSS from family only, but not by cumulative or PSS from friends/peers. The indirect effects demonstrated that cumulative childhood maltreatment was significantly positively associated with frequency of self-harm via PSS from family members ($\beta=0.25$, $p<0.001$), so that the higher the cumulative support, the lower the PSS from family members and, as such, the higher the levels of self-harm. Between cumulative childhood maltreatment and self-harm, findings suggested that only PSS from family, but	Strengths: - Results highlighted the significance of PSS in the relationship between CCM and PSS, amid young adults, signifying clinical implications for the deterrence and treatment of self-harm. - Valid and reliable measures were used. Limitations: - As data were cross-sectional, authors were unable to establish causal relations between variables.

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						not PSS from friends/peers, mediated the CMM and NSSI relationship.	- There were nearly three times as many females than males who took part in the study, making the results less generalisable to males. - Convenience sampling raises potential bias issues. - Only self-report measures were used, which increases the chances of social desirability bias.
32	Nilsson et al. (Study 32) Childhood maltreatment and self-hatred as distinguishing characteristics of psychiatric patients with self-harm: A comparison with clinical and healthy controls. Sweden 2022 65%	This study aimed to investigate whether the association between CM and DSH is mediated by characteristics of negative self-concept, specifically, the 'Hated-self' and/or 'Inadequate-self.'	Sixty-five participants were recruited from an outpatient clinic from a university hospital or referred from the clinician responsible for their treatment. A further twenty-nine participants were recruited via posters at local community centres, gyms, supermarkets and a university campus. These were recruited for the purpose of a control group.	Three groups were compared: 1) Females who engage in DSH with psychiatric disorders (n = 34) 2) Females who don't engage in DSH but have psychiatric disorders (n = 31) 3) Healthy females who don't	NSSI: Assessed using the Inventory of Statements about Self Injury, ISAS (Klonsky & Glenn, 2009). This measure is described previously. Childhood maltreatment: CTQ (Bernstein et al., 1997) as described previously. Self-hatred: This was assessed using the Forms of Self-Criticizing/Attacking and Self-Reassuring scale (FSCRS; Gilbert et al., 2004) which is a self-report 22-itemed tool used to assess individuals' responses to situations where things can go wrong. Depression: This was assessed using the Montgomery Asberg	Mediation analysis: Emotional childhood abuse was significantly associated with hated-self ($r_s = 0.47$; $p < 0.001$) and depression ($r_s = 0.50$; $p < 0.001$). Hated self was significantly associated with depression ($r_s = 0.71$; $p < 0.001$). There was a direct effect of childhood emotional abuse on DSH (log odds coefficient = .157, $p = 0.01$) and an indirect significant mediation effect of hated self (log odds coefficient = 0.117 (95% CI [0.058, 0.217])). Overall, results showed a 43% mediation effect. When severity of depression was included as a variable, the direct effect of childhood emotional abuse (direct effect = 0.166, $p = 0.01$) and the indirect effect (indirect	Strengths: - The study used a comparison group which was matched in sex, was of a comparable age and alike in rates of depressive symptoms. This increased the clinical application of the results. - FSCRS has face validity, in addition to clinical utility in psychiatric settings. - CTQ is a well-established and reliable measure ($\alpha = 0.97$).

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			Only females were recruited to the comparison groups. The means ages for the following groups were as follows: - DSH group ($M_{age} = 24.2$, $SD = 5.4$). - Non-DSH group ($M_{age} = 29.2$, $SD = 7.4$). - Healthy control group ($M_{age} = 23.1$, $SD = 3.1$). Participants were excluded from the study if they met the criteria for drug/alcohol dependency, had bipolar disorder, were diagnosed with ADHD, diagnosed with autism spectrum disorder or had severe depression. ACEs = Emotional abuse.	engage in DSH or have psychiatric diagnoses. (n = 29)	Depression Rating Scale (MADRS; Montgomery & Åsberg, 1979) which is a 10 item-ed self-report questionnaire.	effect = 0.042, 95% CI [-0.005, 0.113]), became non-significant. The mediation effect of Hated self would then change to 20%. Therefore, self-hatred mediated the childhood emotional abuse and DSH relationship.	- MADRS has a Cronbach alpha of 0.87. - ISAS has a Cronbach alpha of 0.84. Limitations: - The generalisability of the results is impeded due to the use of convenience sampling. - All participants were young or middle-aged women and therefore, results cannot be applied to older adult women or the male population. - Sample size in each subgroup was small, limiting the conclusions which can be made from the results.
33	Peh et al. (Study 33)	The study aimed to assess childhood maltreatment, deliberate self-harm	The sample consisted of 108 participants ($M_{age} = 17$ years old, $SD = 1.65$; who were psychiatric	No comparison group	Child maltreatment: This was measured using the Childhood Trauma Questionnaire (CTQ-SF)	Path Analysis*: Path analysis demonstrated that there was a significant indirect effect of childhood abuse on DSH via ED ($B = 0.07$, $p < 0.05$,	Strengths:

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	Emotion dysregulation as a mechanism linking child maltreatment exposure and self-harm behaviours in adolescents. Singapore 2017 75%	(DSH), and emotion dysregulation (ED) among a population of adolescent psychiatric patients.	patients recruited from an outpatient hospital clinic in Singapore. Out of the sample, 59.3% were female, 72.2% were Chinese, and 56.5% had either completed or were in the process of completing high school. ACEs = Physical, sexual, and emotional abuse, and physical and emotional neglect		(Bernstein et al., 2003), as described previously. Self-harm: These were assessed using the self-report checklist from the Functional Assessment of Self-Mutilation (FASM; Lloyd et al., 1997), as described previously. Emotion dysregulation: This was assessed using the Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004), as described previously. Depressive symptoms: This was assessed using the Patient Health Questionnaire (PHQ-8; Kroenke et al., 2009) which is an 8-itemed self-report tool to measure the severity of depressive symptoms.	95% CI [0.02, 0.16]). Model of mediation accounted for 48.6% of the total variance in the frequency of DSH Therefore, ED should be considered a proximal mechanism linking childhood abuse and DSH within an adolescent psychiatric population.	- Adolescent patients were randomly selected (doesn't detail how). - Results have clinical implications in terms of the prevention and treatment of a clinical population of adolescents who self-harm i.e., that interventions should address problems with emotion dysregulation. - Cronbach's alpha was measured for all questionnaires (except self-harm) for the current study. CTQ-SF ($\alpha = 0.85$), for DERS ($\alpha = 0.91$) & PHQ-8 ($\alpha = 0.91$). Limitations: - Although symptoms of depression were controlled for during data analysis, additional variables such as PTSD, dissociative experiences, and/or social support were not examined and/or controlled for. - The paper included a small sample, which restricted the statistical power. - Information on non-responders were not included.
34	Qian et al. (Study 34)	The study aimed to investigate the	The sample consisted of	Participants with MDD with NSSI (n	NSSI: This was assessed against the criteria of NSSI detailed within	Multiple mediation analyses (Qian et al., 2022, p.5):	Strengths:

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	Childhood Maltreatment, Stressful Life Events, Cognitive Emotion Regulation Strategies, and Non-suicidal Self-Injury (NSSI) in Adolescents and Young Adults With First-Episode Depressive Disorder: Direct and Indirect Pathways. China 2022 70%	associations between cognitive emotion regulation, depression severity, NSSI and childhood maltreatment in a population of adolescents with Major Depressive Disorder (MDD).	114 participants (aged 14 to 24 years old) who were experiencing their first episode of MDD. All participants were recruited from a hospital in China and were included in the study if diagnosed with MDD (as per DSM-5 guidance, APA, 2013) by two separate psychiatrists. Participants were excluded from the study if they had comorbid mental disorders, had used illicit substances, had a history of neurological disorders, or a significant physical illness/disorder. Of the participants, 77% were female and the average was 17.28 (SD 2.96). ACEs = Emotional neglect, physical abuse, physical neglect, and sexual abuse.	= 56) were compared with those with MDD without NSSI (n = 58).	the DSM-5 (APA, 2013). Based on results, participants were either placed into the NSSI condition or the non-NSSI condition. Childhood Maltreatment: Assessed by the CTQ (Bernstein et al., 1997), as described previously. Depressive Symptom Severity: This was assessed using the Hamilton Rating Scale (HAM-D; Hamilton, 1960), which is a 17-item self-report scale to measure frequency and severity of depressive symptomatology. Stressful Life Event Assessment: This was assessed by using the Adolescent Self-Rating Life Events Checklist (ASLEC; Liu, 1997), which measures the occurrence and intensity of various stressful life events which have arisen in the last year. Cognitive Emotion Regulation Strategies: This was assessed using the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2022) which is a 36-item tool which measures a range of cognitive emotion regulation strategies.	The path from childhood abuse ($\beta = -0.27, p < 0.01$) and stressful life events ($\beta = -0.26, p < 0.05$) to adaptive cognitive emotion regulation strategies and the path from adaptive cognitive emotion regulation strategies to self-harm ($\beta = 0.23, p < 0.05$) were significant. The direct path from childhood abuse to self-harm was significant ($\beta = -0.31, p < 0.001$). This suggests that cognitive emotion regulation strategies partially mediated the childhood abuse and self-harm relationship. The direct path from stressful life events to self-harm was non-significant, which indicates that adaptive cognitive emotion regulation strategies fully mediated the stressful life events and self-harm association. The pathways from stressful life events to maladaptive cognitive emotion regulation strategies ($\beta = 0.40, p < 0.001$) and from maladaptive cognitive emotion regulation strategies to depressive symptomatology ($\beta = 0.17, p < 0.05$) were significant. The direct path from stressful life events to depression was significant ($\beta = 0.34, p < 0.001$), indicating that maladaptive cognitive emotion regulation strategies partially mediated the stressful life events and depression symptomatology association. Bootstrapping analysis:	- First study to investigate the pathways from childhood abuse and stressful life events to self-harm, and depression via cognitive emotion regulation strategies in young individuals experiencing their first episode of MDD. - All measures used are reliable. - All measures used are well established and valid. Limitations: - It is a cross-sectional study, making it difficult to infer causality amongst variables. - The study only recruited individuals with first episode MDD, using those with MDD who don't self-harm as a control group. Yet, a healthy control group would have been beneficial to assess whether there are differences between those with MDD and those

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						The findings indicated that indirect effects of childhood abuse ($\beta = -0.006$, 95% CI [$-0.13, -0.008$]; $p < 0.05$), and stressful life events ($\beta = -0.006$, 95% CI: $-0.13, -0.002$; $p < 0.05$) on NSSI, were mediated by adaptive cognitive emotion regulation strategies, and were statistically significant. As such, adaptive cognitive emotion regulation strategies partially mediated the relationship between childhood abuse and self-harm but fully mediated the association between stressful life events and self-harm.	without psychiatric disorders. - A relatively small sample size was used.
35	Reyes et al. (Study 35) Adverse Childhood Experiences and Non-Suicidal Self-Injury as mediated by Pathological Personality Traits. Philippines 2019 60%	The current study explored the impact of ACEs on NSSI, as mediated by Pathological Personality Traits (PPTs), among Filipino adolescent students.	The final sample consisted of 653 Filipino college students (aged 18 to 24 years; $M = 19.53$, $SD = 1.22$). Ethnicity of participants were not reported, although consisted of 532 females and 250 males. ACEs = Familial dysfunction, neglect, physical, emotional and sexual abuse, peer violence, and exposure to war/collective violence.	No comparison group	ACEs: This was measured using the Adverse Childhood Experiences International Questionnaire (ACE-IQ). (WHO, 2018) which is a self-report 43-itemed tool which assesses for different forms of childhood abuse and adversities. NSSI: This was assessed with the Self-Harm Inventory (SHI; Sansone et al., 1998), as described previously. PPTs: This was assessed by the Personality Inventory for DSM-5 - Brief Form Adult (PID-5-BF; APA, 2013) which is a 25-itemed measure designed to assess different types of pathological traits.	Mediation analysis: ACEs were significantly associated with PPTs, ($B = .08$, $p < .05$), and PPTs were significantly associated with NSSI, ($B = 1.57$, $p < .05$). ACEs remained significantly associated with NSSI after controlling for PPTs, ($B = .36$, $p < 0.05$), which his suggestive of partial mediation. Sobel test: Sobel test results suggested that the mediation effect was significant ($z = 5.80$, $SE = .021$, $p < .05$). The effects of ACEs on NSSI were significantly decreased, but not eradicated, after the inclusion of PPTs. As such, results demonstrated that the relationship between ACEs and NSSI was partially mediated by PPTs.	Strengths: - In the present study, the ACE-IQ had a reliability measure of $\alpha = .77$., SHI ($\alpha = .74$) and the PID-5-BF ($\alpha = .74$) - A large sample size was used. Limitations: - The study did not identify which form of childhood abuse was directly associated with self-harm and PPTs. - The results did not identify the differences between genders in terms of the occurrence of self-harm, or consider gender to be a potential mediating factor. - The results are non-generalisable to other

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							countries/cultures and older adults.
36	Roley-Roberts et al. (Study 36) The unique relationship between childhood sexual abuse, self-injury and suicide ideation (SI): The mediating role of emotion dysregulation. USA 2022 75%	The current study aimed to examine the predictive nature of particular dimensions of emotion dysregulation, in relation to self-harm, suicide ideation and childhood sexual abuse.	The sample consisted of 121 US university students (aged 18-22 years old; M = 18.69). All participants had a history of childhood abuse, with 78% of the sample being female. To be included within the study, participants must have experienced childhood abuse prior to the age of 12 years old. ACE = Childhood Sexual Abuse	There was no comparison group.	NSSI: Assessed using the FASM (Lloyd-Richardson et al., 2007) as described previously. Childhood Trauma: This was assessed using the 'Trauma History Profile' subsection of the UCLA PTSD Reaction Index for DSM-5 (UCLA-PTSD-5; Steinberg et al., 2013). The tool assesses various characteristics in relation to one's experiences of childhood abuse, and was adapted into a self-report questionnaire format for use within the study. Emotion Dysregulation: DERS (Gratz & Roemer, 2004), as described previously.	Mediation Analysis: Mediation analysis demonstrated that all emotion dysregulation subcategories (i.e., clarity, strategy, aware, goals, and non-acceptance subscales) did not mediate the association between CSA and NSSI (all $p > 0.05$)	Strengths: - Reports sample size is statistically sufficient. - The FASM has adequate psychometric properties ($\alpha = 0.65$ to 0.66) - Childhood trauma needed to have occurred before the age of 12, which assists with the temporal ordering of variables. Limitations: - The study asked individuals to disclose retrospective experiences of CSA, raising issues to do with recall bias and the reliability of answers given. - All participants either identified as male or female, therefore, findings cannot be generalised to non-binary individuals, or those of other genders. - The findings may not be generalisable to survivors of CSA who of lower economic

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							status, or those who did not gain further education.
37	Rong et al. (Study 37) Childhood maltreatment and nonsuicidal self-injury among younger Chinese prisoners: the mediating role of self-esteem. China 2022 75%	The current study explored the relationship between childhood maltreatment (CM), NSSI and self-esteem amongst Chinese prisoners.	The final sample consisted of 1,040 prisoners ($M_{age} = 23.72$, $SD = 2.49$). Participants were recruited from one juvenile prison and one women's prison, both in China. Of the sample, 698 were males and 342 were females. To be included in the study, participants had to be of good physical health, been incarcerated for over 12 months and be under the age of 30. ACEs = Emotional neglect, physical abuse, physical neglect, and sexual abuse.	No comparison group.	NSSI: This was measured by the Chinese version of the Functional Assessment of Self-Mutilation (CH-FASM; Leong et al., 2014), as described by the English version previously. Childhood Trauma: Was assessed by the Childhood trauma questionnaire-short form (CTQ-SF), as described previously. Self-esteem: assessed using the Rosenberg self-esteem scale (RSES; Rosenberg, 1965) – as described previously.	Mediation analyses: <i>SE mediated CM and NSSI for the full sample:</i> CM was a significant predictor of self-esteem ($\beta = -0.128$, $p < 0.001$), and self-esteem was a significant predictor of NSSI ($\beta = -0.090$, $p < 0.001$). The direct effect of CM on NSSI = 0.033 , $p < 0.001$ and the total effect = 0.023 , $p < 0.001$. This suggests a partial mediation effect. <i>The mediation effect of SE in the CM and NSSI relationship among males:</i> CM was a significant predictor of self-esteem ($\beta = -0.139$, $p < 0.001$), and self-esteem was a significant predictor of NSSI ($\beta = -0.096$, $p < 0.001$). The direct effect of CM on NSSI = 0.008 , $p > 0.05$, non-significant and the total effect = 0.022 , $p < 0.001$. This suggests a full mediation effect. <i>The mediation effect of SE in the association between CM and NSSI among females:</i> CM was a significant predictor of self-esteem ($\beta = -0.137$, $p < 0.001$), and self-esteem was a significant predictor of NSSI ($\beta = -0.093$, $p < 0.001$). The direct effect of CM on NSSI = 0.051 , $p < 0.001$ and the total effect = 0.057 , $p < 0.001$. This suggests a partial mediation effect. <i>The mediation effect of SE in the relationship between CM and NSSI in males who were 24 years old or younger:</i> CM was a significant predictor of self-	Strengths: - Nonresponse rate was less than 2% - Use of well-validated and reliable measures. - Results from study were clearly presented to aid understanding, Limitations: - Retrospective self-report measures were administrated in this study, which may lead to recall bias. - Convenience sampling used from two prisons in central China, effects generalisability of study to other prison populations. - Higher male to female ratio in sample (67% males).

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						esteem ($\beta = -0.137, p < 0.001$), and self-esteem was a significant predictor of NSSI ($\beta = -0.105, p < 0.001$). The direct effect of CM on NSSI = $0.024, p < 0.05$ and the total effect = $0.037, p < 0.001$. This suggests a partial mediation effect. <i>The mediation effect of SE in the relationship between CM and NSSI among females who were above the age of 24:</i> CM was a significant predictor of self-esteem ($\beta = -0.067, p < 0.001$), and self-esteem was a significant predictor of NSSI ($\beta = -0.105, p < 0.001$). The direct effect of CM on NSSI = $0.021, p > 0.05$, non-significant and the total effect = $0.029, p < 0.005$. This suggests a full mediation effect.	
38	Shenk et al. (Study 38) A Multiple Mediation Test of the Relationship Between Childhood Maltreatment and Non-suicidal Self-Injury US 2010 65%	This study aimed to assess the mediational properties of post-traumatic stress symptoms (PTSS), symptoms of depression, and psychological dysregulation, in the association between childhood maltreatment and NSSI.	The sample consisted of a total of 211 female adolescents (aged 14 to 18; $M_{age} = 15.75$, $SD = 1.11$). The sample of maltreated females were referred to the researchers by child protective services (CPS) in the past year and had survived corroborated childhood abuse as concluded by a CPS investigation. Non-maltreated adolescents were	Maltreated female adolescents ($n = 129$) were compared to non-maltreated female adolescents ($n = 82$).	Posttraumatic Stress Symptoms (PTSS) – Assessed by The Comprehensive Trauma Interview (CTI; Horowitz, 1998) which is a semi-structured interview measuring PTSS in relation to traumatic events one has experienced. Depressive Symptoms: This was assessed using the Centre for Epidemiologic Studies Depression (CES-D-10) which is a 10-itemed self-report scale which measures depressive symptomatology. Psychological Dysregulation – This was assessed using the Dysregulation Inventory (DI;	Multiple mediator test (Shenk et al., 2010, pp. 338-339): The total indirect effect for post-traumatic stress symptoms, depressive symptoms and psychological dysregulation was significant, $Z = 3.21, p < .001$, indicating that the combination of mediators explained the childhood abuse and self-harm association. PTSS was the only independent indirect path to mediate the association between childhood abuse and self-harm ($Z = 2.71, p < .01$.) Depressive symptoms and psychological dysregulation, independently, did not significantly contribute to the total	Strengths: - The study used a healthy control group which was demographically matched to the maltreated group of females on various factors. This was to help minimise issues regarding confounding variables. - The sample consisted of a relatively diverse population, in terms of ethnicity. - The study used standardised self-report tools were used to assess depression and psychological dysregulation.

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			recruited from a local health centre. Of the total sample, 55% were Caucasian, 37% were African-American, and 8% were Bi-racial. ACEs = Physical neglect and contact physical or sexual abuse.		Mezzich et al. 2001) which is a self-report tool used to establish of problems in relation to dysregulated thinking, feelings and behaviours. NSSI – This was assessed by one question asking about engagement in self-harm, taken from the CTI (Horowitz, 1998), as described above.	indirect effect pathway, between childhood abuse and self-harm.	- The researchers used a comprehensive semi-structured interview to quantify levels of PTSS. Limitations: - The used a female only sample and therefore, conclusions about whether this same pathway to NSSI can be generalised to male adolescents is unclear. - Issues with selection bias in terms of volunteer participants.
39	Stagaki et al. (Study 39) The mediating role of attachment and mentalising in the relationship between childhood maltreatment, self-harm and suicidality. UK 2022 70%	This study aimed to examine the mediating roles of attachment and mentalising within the associations between childhood abuse, self-harm and suicidality.	The sample consisted of a total of 907 participants (aged 18 to 65, $M_{age} = 30.7$, $SD = 10.3$), all of which were recruited from three different locations in London: - Participants with borderline personality disorder (BPD; $n = 399$) and antisocial personality disorder (ASPD; $n = 66$) were recruited from personality disorder services.	No comparison group	NSSI: Self-harm was measured with 3 separate questions taken from the following 3 measures: the Drugs, Alcohol and Self-Injury Questionnaire (DASI; Cassels et al., 2018); the Personality Assessment Inventory-Borderline Scale (PAI-BOR; Morey, 1991); and the Life History of Aggression questionnaire (LHA; Coccaro et al., 1997). Childhood Maltreatment (CM): Assessed by the Childhood trauma questionnaire (CTQ; Bernstein et al., 1994), as described previously. Romantic Attachment: This was assessed using the Experiences in Close Relationships Scale (ECR-R; Fraley et al., 2000) which is a 36-itemed 36 items self-report scale to	Mediation analysis: Please note all mediation models control for age, gender and education level. <i>Attachment as a mediator:</i> Mediation analysis showed significant direct effects of CM on attachment ($\beta = 0.54$, $p < 0.001$. [95% CI 0.47–0.62]) and attachment on NSSI ($\beta = 0.42$, $p < 0.001$. [95% CI 0.24–0.61]). The indirect effect of attachment within the CM-NSSI relationship is significant ($\beta = 0.23$, $p < 0.001$ [95% CI 0.12–0.34]). The direct effect between CM and NSSI was also significant ($\beta = 0.22$, $p < 0.001$ [95% CI 0.13–0.31]). This is suggestive of partial mediation. <i>Mentalisation as a mediator:</i> Mediation analysis showed significant direct effects of CM on mentalising ($\beta = 0.33$, $p < 0.001$. [95% CI 0.25–0.41]), and significant direct effects of mentalising on NSSI ($\beta =$	Strengths: - This is the first study to provide empirical support for the mutual mediating function of attachment and mentalising in the relationship between childhood maltreatment and self-harm. - The CTQ is a well-established, valid and reliable tool ($\alpha = 0.90$ for emotional, $\alpha = 0.90$ for physical abuse, $\alpha = 0.96$ for sexual abuse, $\alpha = 0.76$ for neglect of a physical nature and $\alpha = 0.91$ for neglect of an emotional nature)

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			- Participants with anxiety and depressive disorders (n = 184) were recruited from NHS psychological services. - Participants for the healthy control group (n = 258) were recruited from various community settings. Of the sample, 69.2% were female and 66.6% were White/Caucasian. ACEs = Physical, sexual & emotional abuse, and physical and emotional neglect.		assess different experiences within romantic relationships. Mentalising: This was assessed using the Reflective Functioning Questionnaire (RFQ; Fonagy et al., 2016) which is a self-report 54-item questionnaire to measure an individuals' ability to recognise the mental states of themselves and others.	0.25, $p = 0.001$. [95% CI 0.10–0.40]). The indirect effect of mentalising within the CM-NSSI relationship was significant ($\beta = 0.08$, $p = 0.002$ [95% CI 0.03–0.14]). The direct effect between CM and NSSI was also significant ($\beta = 0.22$, $p < 0.001$ [95% CI 0.13–0.31]). This is suggestive of partial mediation. <i>Attachment and mentalising as combined mediators:</i> The direct effect of CM on NSSI was significant ($\beta = 0.22$, ($p < 0.001$[CI: 0.13–0.31]). The indirect effect of CM on NSSI, via attachment and mentalising was significant ($\beta = 0.31$, $p < 0.001$. [95% CI 0.23–0.39]). This is suggestive of partial mediation.	- ECR-R demonstrated excellent internal consistency (α for anxiety subscale = 0.93 & for avoidance subscale $\alpha = 0.94$) - FRQ has excellent internal consistency and test-retest reliability (certainty scale, $\alpha = 0.90$ and uncertainty scale $\alpha = 0.91$). Limitations: - The sample predominantly consisted of participants of white females and those with personality disorders. This reduces the representativeness and generalisability of the results. - Measures used were self-report, which may be affected by social desirability and recall biases. - Cross-sectional design so causality between factors measured are mainly speculative.
40	Steine et al. (Study 40)	This study aimed to assess the role of various	The sample consisted of 516, predominately female adult survivors of CSA, recruited from	No comparison group	Characteristics of abuse and perpetrator: Dichotomous variables (1 = yes; no = 0)	Hierarchical linear regression: In those with lifetime NSSI (n = 516), the perpetrator being unknown to the victim ($\beta = 0.14$, $p = 0.023$) and CCM ($\beta = 0.23$,	Strengths:

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	Predictors and correlates of lifetime and persistent non-suicidal self-injury and suicide attempts among adult survivors of childhood sexual abuse (CSA). Norway 2020 65%	characteristics of childhood abuse, cumulative childhood maltreatment (CCM), and other psychological variables, as predictors of self-harm and suicidality.	support centres in Norway. The ethnicities and average age of participants were not reported. In terms of work/educational statuses, 45% of participants were categorised as claiming disability or occupational benefits, 29% of individuals possessed an undergraduate level degree and 25% had graduated secondary school. ACES = CSA		measured various characteristics of the abuse and the perpetrator. Cumulative childhood maltreatment: measured using the CTQ-SF (Bernstein & Fink, 1998), as described previously. Post-traumatic stress symptoms (PTSS): This was measured using the Impact of Event Scale Revised (IES-R; Weiss, 2004) which is a self-report 22-itemed tool evaluating fundamental PTSD symptomatology from the last 7 days. Anxiety and depression symptoms: These were assessed using the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), which is a self-report tool focusing on said symptomatology from the past 7 days. Eating disorder (ED) symptoms: This was measured using the Eating Disorder Examination Self-Report Questionnaire (EDE-Q; Cooper & Fairburn, 1987) which consists of 36 self-report items which assess key behavioural features of an eating disorder, from the past month.	$p = 0.000$) were both significant predictors of NSSI behaviours. In those with persistent NSSI ($n = 138$), the perpetrator being unknown to the victim ($\beta = -0.14, p = 0.028$) and CCM ($\beta = 0.15, p = 0.048$) were also both significant predictors of NSSI behaviours. Anxiety symptoms ($\beta = 0.20, p = 0.027$), symptoms of depression ($\beta = 0.18, p = 0.044$), symptoms of ED ($\beta = 0.15, p = 0.043$), and engaging in lifetime NSSI ($\beta = 0.52, p = 0.000$) all significantly predicted engagement in NSSI behaviours.	- The study uses a large sample of survivors of CSA. - All measures show good to excellent reliability in the study sample (all Cronbach's alpha are 0.83 or above) Limitations: - In the sample was homogeneous in the sense that it was made up of support centre users for those who have survived childhood abuse, the sample was predominately female (mainly female). Therefore, the results lack generalisability. - There was a low response rate (32.7% in Wave 1) - The self-report questions used to establish CSA, may fail to identify CSA where participants cannot recall it due to them being too young, having repressed memories or encountering dissociative

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							experiences at the time of abuse.
41	Swannell et al. (Study 41) Child maltreatment, subsequent non-suicidal self-injury and the mediating roles of dissociation, alexithymia and self-blame. Australia 2012 75%	This study aimed to assess the effect of child abuse on self-harm and examine the mediational properties of dissociation, alexithymia and self-blame, within this association.	For this study, data were taken from the 'Australian National Epidemiological Study of Self-Injury (ANESSI)', a national household telephone survey of the Australian population conducted in 2008. The sample consisted of 11, 423 adults (aged 18 to 100 years; ($M_{age} = 52.11$, $SD = 16.89$). Of the sample, 62.2% were female. ACEs = Physical neglect, physical abuse and sexual abuse	Non-self-harmers ($n = 10,533$) were compared to participants who had self-harmed in the last year ($n = 186$)	Non-Suicidal Self-Injury (NSSI) – The questions were created exclusively for the ANESSI telephone survey and were based on previous research. Questions asked about forms of NSSI, frequency of NSSI, and onset of NSSI. Child Maltreatment - Questions were based on items from the Child Trauma Questionnaire (Bernstein & Fink, 1998) as described previously. Dissociation, alexithymia, self-blame – Dissociation was measured by two items from the Dissociative Experiences Scale (Bernstein & Putnam, 1986), as described previously. Alexithymia was assessed by one question taken from the Toronto Alexithymia Scale (Bagby et al., 1994). Self-blame was assessed using one item from the 'self-blame' subscale of the Brief COPE questionnaire (Carver, 1997).	Mediation Analysis (Swannell et al., 2012, p.578 & p.579): <i>Females:</i> Dissociation, alexithymia and self-blame all significantly decreased the direct effect of all types of childhood abuse on self-harm ($p < .01$): - Self-blame (OR reduction of 14.6%, $p < .000$). - Alexithymia (OR reduction 6.2%, $p = .009$). - Dissociation (OR reduction 5.0%, $p = .003$). Therefore, all variables partially mediated the childhood abuse and self-harm relationship. <i>Specific types of CM:</i> Dissociation significantly decreased the direct effects of physical abuse (by 6.1%, $p = .004$) and neglect harm (by 3.2%, $p = .004$) on self-harm. Alexithymia significantly decreased the direct effects of physical abuse (6.3%, $p = .007$) and neglect (9.4%, $p = .004$) on self-harm. Self-blame significantly decreased the direct effects of physical abuse (13.5%, $p < .000$) and neglect (15.6%, $p < .000$) on NSSI.	Strengths: - Self-harm occurrence was restricted to 12 months to help decrease the effect of recall bias. - A large sample was used. - The study used a systematic random sampling method. Limitations: - The study had a low response rate (38.5%), and details about non-responders were not reported. - The low response may contribute to increased selection bias. - Retrospective and self-report data was used, potentially leading to issues around reliability, given self-harm and childhood abuse are sensitive topics.

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						<i>Males</i> Dissociation (12.9%, $p = .003$) and self-blame (7.4%, $p < .000$), significantly decreased the direct effect of any child abuse on self-harm (both $p < .01$), however, alexithymia did not (7.4%, $p = .023$). Dissociation had the largest effect (OR reduction 12.9%, $p = .003$). Alexithymia was not a partial mediator. Both dissociation (12.3%, $p = .006$) and self-blame (10.7%, $p = .009$) significantly reduced the direct effect of physical abuse on self-harm.	
42	Talmon & Gingzburg (Study 42) The Differential Role of Narcissism in the Relations Between Childhood Sexual Abuse (CSA), Dissociation, and Self-Harm. Israel 2018 70%	This study aimed was to test a model that may explain variables contributing to the relationship between CSA and self-harm, specifically dissociation and narcissism, among college/university students.	The sample was comprised of 766 university students from Israel ($M_{age} = 25.95$, $SD = 13.70$), who were recruited through social media sites. The total sample consisted of 500 females and 266 males, and the majority of the sample (80.9%) were undergraduate students. Ethnicity was not reported. ACEs = CSA	No comparison group	CSA: This was assessed by the 'sexual abuse' subscale of the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), as described previously. Dissociation: This was assessed using the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), as described previously. Self-harm: This was assessed using the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001) – as described previously. Narcissism: This was measured using the Brief-Pathological Narcissism Inventory (B-PNI; Schoenleber et al., 2015), which is a self-report 28 itemed tool	Mediation: Results indicated that the indirect effect of CSA on NSSI via dissociative experiences was significant, 95% CI [.01, .03]. The direct effect remained significant, $b = .17$ $p < .001$. This is suggestive of partial mediation.	Strengths: - A large sample was used. - All measures used were shown to be reliable. CTQ ($\alpha = .87$), DES ($\alpha = .93$), DSHI ($\alpha = .78$) & B-PNI ($\alpha = .79$ for grandiosity $\alpha = .90$ & for vulnerability) Limitations: - Self-report questionnaires based on retrospective data were used and may have led to biases such as social desirability and recall biases. - Due to the use of convenience sampling, caution should be exercised in generalising these results

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					assessing both narcissistic grandiosity and vulnerability.		due to a possibility of self-selection bias.
43	Tasca (Study 43) Expressive suppression, Child maltreatment, and non-suicidal self-injury in adolescents. USA 2021 70%	To investigate whether those with poor emotion regulation skills, who rely on emotional suppression (ES) rather than cognitive reappraisal (CR) as a coping tactic would be at a greater risk of turning to NSSI to manage with their distress.	Participants (n = 73) were adolescents who were hospitalised at a private psychiatric facility in the suburbs of a large north-eastern city in the United States. The sample's mean age was 15.7 years (SD = 1.0, range 13-17). There were more female participants (n = 49), than male participants (n = 24). There was a diverse mix of ethnicities amongst the participants Caucasian (n = 32), Hispanic/Latino (n = 13), Black/African American (n = 5), Asian (n = 5), other (n = 2) and prefer not to say (n = 14). Exclusion criteria: Diagnoses of intellectual disabilities, pervasive developmental disorders, schizophrenia spectrum disorders and neurological conditions. ACEs = physical abuse, emotional abuse, sexual	No comparison group	NSSI: Assessed by Functional Assessment of Self-Mutilation (FASM; Lloyd et al., 1997), as described previously. Childhood Trauma: Assessed by Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998), as described previously. Emotion Regulation: Assessed by the Difficulties in Emotion Regulation – Short Form (DERS-SF; Kaufman et al., 2015). This is an 18-itemed self-report measure of emotion dysregulation adapted from the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), as described previously. Emotion regulation strategies: This was assessed using the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gross & John, 2003) which is a 10 itemed tool measuring cognitive reappraisal and emotional suppression strategies.	Mediation analyses: Emotion regulation mediated the association between emotional abuse and self-harm ($\beta = 0.08$, SE = 0.02 [95% CI 0.3 -0.11]). Although, results of the indirect effects suggest that cognitive reappraisal ($\beta = 0.03$, SE = 0.01, 95% CI [-0.1 -0.2]) and expressive suppression ($\beta = 0.02$, SE = 0.01, 95% [CI -0.1 - 0.1]) did not mediate the emotional abuse and self-harm relationship.	Strengths: - The CTQ has demonstrated moderate to high internal consistency ($\alpha = .66$ to $\alpha = .92$) across a variety of studies. - CTQ test-retest reliability coefficients ranging from .79 to .86 over an average of 4 months (Bernstein et al., 2003; Scher et al., 2001). - Confirmatory factor analysis has found that scores on the DERS-SF produce similar results and have similar psychometric properties to that of the full measure (DERS), ranging from .90 to .98 (Kaufman et al., 2015). Limitations: - Participants were recruited from one psychiatric hospital in ain US, affecting its generalisability to other states, as well as other countries/cultures.

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			abuse, emotional neglect and physical neglect.				- Self-report measures increase possible recall bias.
44	Thomassin et al. (Study 44) Specificity of childhood maltreatment and emotion deficit in nonsuicidal self-injury in an inpatient sample of youth. US 2016 65%	This study aimed to assess the mediating effects of emotion regulation skills on the childhood maltreatment and NSSI relationship, specifically in a population of children/adolescents in a psychiatric unit.	The study consisted of 95 participants (aged 10 to 17; $M_{age} = 14.22$, $SD = 1.67$), who were recruited from two separate psychiatric hospitals in the US. Out of the sample, 58% were female, 56% were Caucasian and 35% were African American. ACEs = Childhood emotional, sexual, and physical abuse, as well as emotional and physical neglect.	No comparison group	Self-harm: Was assessed by the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001), as described previously. Child and adolescent history of abuse: Was measured by the Childhood Trauma Questionnaire (CTQ; Bernstein and Fink, 1998) – as described previously. Emotional expressivity and coping were measured with two separate measures: - The Emotion Expressivity Scale for Children (EESC; Penza-Clyve and Zeman, 2002) which is a self-report that measures affective expressivity in a youth population. - The Children's Emotion Management Scales (CEMS; Zeman et al., 2001) which is a self-report measure to evaluate emotional coping.	Mediation analyses: The relationship between emotional abuse and self-harm was mediated by emotion expressivity ($b = 0.114$, $p = 0.027$, 95% CI [0.013, 0.214]). The relationship between emotional abuse and self-harm was not mediated by emotion coping ($b = 0.054$, $p = 0.235$, 95% CI [0.035, 0.142]). Indirect effects from physical abuse to self-harm were nonsignificant for emotion expressivity emotion coping. Indirect effects from childhood sexual abuse to self-harm were nonsignificant for emotion expressivity and emotion coping. As such, findings suggest that poor emotion expressivity mediated the childhood emotional abuse and self-harm relationship.	Strengths: - Subscales of the CEMS with low internal reliability ($\alpha > 0.60$) were omitted from the study. - The CTQ had reliable subscales (all $\alpha > 0.78$). Limitations: - Temporal precedence of childhood abuse and self-harm cannot be presumed as the study assessed for lifetime self-harm. - A greater sample size would be needed to explore gender differences within this study. - Capacity was judged via nurses' own judgement.
45	Tian et al. (Study 45) Resilience is inversely associated	The study aimed to assess the role of resilience in the relationship between childhood abuse and	The sample was comprised of 3146 participants (aged 10 to 17).	No comparison group	Childhood trauma: This was assessed using the 28-item Childhood Trauma Questionnaire (CTQ) – as described previously.	Multivariate Regression Analyses: Results showed that resilience was significantly related to self-harm behaviour amongst all types of childhood	Strengths: - Samples were selected based on a three-stage

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	with self-harm behaviours among Chinese adolescents with childhood maltreatment. China 2020 75%	self-harm, amongst an adolescent Chinese population.	Participants were recruited from 14 schools in China (5 primary, 5 junior high, and 4 senior high schools). Mean age and ethnicity not reported for overall sample. ACEs = Physical abuse, emotional abuse, sexual abuse, emotional neglect and physical neglect		Self-harm: This was measured using the Modified version of Adolescents Self-Harm Scale (MASHS) (Feng, 2008), which is a self-report measure obtaining information on the frequency and severity of a range of self-harm methods. Resilience: This was assessed using the Resilience Scale for Chinese Adolescents (RSCA) (Hu & Gan, 2008) which is a self-report tool measures various facets of resilience. To establish victims of bullying: This was assessed using the Chinese version of Olweus Bully/Victim Questionnaire (OBVQ) (Olweus, 1996) and used to screen for victims of various forms of bullying.	abuse. After controlling for associated influencing variables, the association between resilience and self-harming behaviours remained. Compared to less resilient adolescents, the ORs for engaging in SH behaviours in adolescents with higher levels of resilience were: - Physical abuse = 0.39 (95% CI [0.27, 0.58]). - Emotional abuse = 0.32 (95% CI [0.20, 0.50]). - Sexual abuse = 0.46 (95% CI [0.26, 0.81]). - Physical neglect = 0.30 (95% CI [0.20, 0.47]). - Emotional neglect = 0.33 (95% CI [0.20, 0.55]) (Tian et al., 2022, pp. 8-10) Multivariate regression analyses encompassing five facets of resilience concurrently demonstrated positive relations between self-harm and: - Emotion regulation (OR = 0.39, 95% CI [0.26, 0.58]) in physical abuse. - Goal concentration (OR = 0.39, 95% CI [0.29, 0.53]) and emotion regulation (OR = 0.35, 95% CI [0.20–0.60]) in emotional abuse. - Goal concentration (OR = 0.52, 95% CI [0.35, 0.75]) and	random clustering sampling approach. - There was a response rate of 97.07% so unlikely to be issues regarding self-selection bias. - A large sample was used. - CTQ is a valid and reliable measure. Limitations: - The retrospective nature of data gathered for childhood abuse may lead to recall bias, which may influence the reliability of findings. - As results were obtained from just one region in China, generalising the results to the whole Chinese adolescent population should be done with caution.

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						emotion regulation (OR: 0.37, 95% CI [0.19–0.71]) in sexual abuse. - Goal concentration (OR = 0.67, 95% CI [0.48, 0.94]), interpersonal assistance (OR = 0.49, 95% CI [0.33, 0.72]) and emotion regulation (OR = 0.42, 95% CI [0.27, 0.64]) in physical neglect. - Interpersonal assistance (OR = 0.62; 95% CI [0.43, 0.90]), emotion regulation (OR = 0.36, 95% CI [0.26, 0.51]), and family support (OR = 0.63, 95% CI [0.49, 0.82]) in emotional neglect. (Tian et al., 2022, pp. 8-10)	
46	Tian et al. (Study 46) Childhood maltreatment and self-harm in Chinese adolescents: moderation and mediation via resilience. China 2021 90%	To test the hypothesised mediation and moderation of resilience in the association between childhood maltreatment and self-harm.	The study was comprised of a total of 3146 participants ($M_{age} = 13.32$, $SD = 2.18$), Of the sample, 45.7% were male and 54.3% were female. In terms of educational status, 36% were from primary school, 34% were from middle school and 30% from high school.	No comparison group	Childhood maltreatment: Assessed using the CTQ (Bernstein et al., 1997) as described previously. Resilience: Measured using the Resilience Scale for Chinese Adolescents (RSCA; Hu & Gan, 2008), as described previously. Self-harm: Was assessed using the MASHS (Feng, 2008) as described previously.	Mediation of resilience in CM-SH association: Childhood abuse was directly related to resilience ($b = -0.56$, $p < 0.001$) and severity of self-harm ($b = 0.30$, $p < 0.001$), resilience was directly related to severity of self-harm ($b = -0.27$, $p < 0.001$), and partially mediated the relationship between childhood abuse and self-harm behaviour (standardized indirect association = $-0.56 \times -0.27 = 0.15$). This model explained 33.46% of the total association (total association = $-0.56 \times -0.27 + 0.30 = 0.45$).	Strengths: - Uses a large sample of Chinese adolescents ($n = 3146$). - All measures reliable and valid. - Samples were selected based on a three-stage random clustering sampling approach. Limitations: - The use of cross-sectional data means causal conclusions cannot be drawn.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
			ACEs = Physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.			The following facets of resilience impacted the childhood abuse and self-harm association: - Emotion regulation (23.14%). - Family support (19.08%). - Interpersonal assistance (13.73%). - Goal concentration (8.34%). Moderation of resilience in CM-SH : Findings suggested that childhood abuse ($B = 1.02$, CI 95% [0.77–1.26]) and resilience ($B = -1.47$, CI 95% [- 1.93- - 1.01]) were significantly related to self-harming behaviour. Moderation analysis found that resilience and childhood abuse had a small but significant relationship with self-harming behaviour ($B = -0.10$, CI 95% [-0.13- - 0.07]), which suggests that resilience functions as a moderator.	- The use of self-reported measures may have led to responder biases. - As results were obtained from just one region in China, generalising the results to the whole Chinese adolescent population, or other countries/cultures, should be done with caution.
47	Titelius et al. (Study 47) Emotion Dysregulation Mediates the Relationship Between Child Maltreatment and Non-Suicidal Self-Injury US 2017 75%	The study aimed to explore the relationship between childhood abuse, Emotion Dysregulation (ED), and self-harm.	The sample was comprised of 53 adolescent participants (aged 12–18) recruited from psychiatric hospitals in the US. Of the total sample, 81% were female. Ethnicity not reported. ACEs = physical, sexual, and emotional abuse, as well as	No comparison group	Childhood abuse: The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998), as described previously. Emotion regulation: The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), as described previously. NSSI frequency: Assessed by one subscale from the Self-Injurious Thoughts and Behaviour Interview (SITBI; Nock et al. 2007), as described previously.	Mediation Analyses: Emotion dysregulation was significantly related to the occurrence of self-harm behaviour ($\beta = .37$, $p = .003$), with higher level of emotion dysregulated being associated with more frequent self-harming behaviour. Mediation analyses demonstrated that emotion dysregulation mediated the relationship between childhood abuse (specifically physical and emotional abuse) and incidences of self-harming behaviour ($\beta = .386$, 95% [CI: .0431, 1.177]).	Strengths: - The non-significant results reported. - DERS reliability was good for the current population ($\alpha = .94$). - CTQ was lower in reliability but still adequate. - Results have clinical implications in the sense that they provide empirical support for interventions to develop emotion regulation strategies in adolescents

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
			physical and emotional neglect				who self-harm, with a history of childhood abuse. Limitations: - The study used data from a relatively small sample of mostly female adolescents receiving psychiatric treatment. - The use of self-reported measures may have led to responder biases. - Rates of sexual abuse were scarce within the study. Therefore, result may reflect lack of variance as opposed to no effect.
48	Turell & Armsworth (Study 48) A Log-Linear Analysis of Variables Associated With Self-Mutilation Behaviors of Women With Histories of Child Sexual Abuse US 2003 65%	The study aimed to assess variables related to self-harm in survivors of childhood sexual abuse (CSA), and how these differ from survivors of CSA who do not self-harm.	The sample consisted of 84 participants (aged 18 to 67; M = 32.48, SD = 9.69). They were all women and 78.6% of the sample were White/Caucasian. ACEs = CSA	CSA survivors who DSH (n=42) and CSA survivors who do not DSH (n = 42)	Attitudes on sex and body image: This was assessed using the Sexual Attitudes Survey (Finkelhor, 1980) which is a 6-item tool to measure attitudes on sex and body image. Psychopathology: This was measured using the Diagnostic Inventory of Personality and Symptoms (DIPS; Vincent, 1985). Dissociative symptoms: The Dissociative Experiences Scale (DES), developed by Bernstein and Putnam (1986), as described previously. Depressive symptoms: This was assessed using the Beck Depression Inventory (BDI; Beck, 1978), as described pre	Log linear analysis: A log linear analysis included main effects of additional abuse, depression, dissociation, and eating disorders, on predicting NSSI in those with a history of CSA was a good fit for the data ($L2 = 40.72$, $df = 41$, $p = .483$). (Turell & Armsworth, 2003, p.504) A model that included the main effects of additional abuse, depression, dissociation, eating disorders and loss of mother was also a good fit for the data ($L2 = 40.71$, $df = 40$, $p = .439$) in predicting NSSI in survivors of CSA. (Turell & Armsworth, 2003, p.504)	Strengths: - The authors developed a screening tool for clinicians to assess risk of self-harm, based on these results. - Measures used are well established and validated, (although reliability for current sample not reported) Limitations: - The non-random-sampling methods and use of convenience sampling may have led to constrained generalisability of results. - As sample was made up of volunteers, there may be

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
							issues regarding self-selection bias. - As information on childhood abuse was self-report, there may be issues regarding recall and social desirability biases.
49	Wan et al. (Study 49) Associations of coping styles with nonsuicidal self-injury in adolescents: Do they vary with gender and adverse childhood experiences? China 2020 85%	The study aimed to examine the independent roles of positive coping (PC) and negative coping (NC) in the relationship between self-harm and childhood abuse in girls and boys.	The study population was obtained from a health survey consisting of 9704 adolescents recruited from junior and senior schools in Cina (during 2013-2014). ACEs = physical, sexual, and emotional abuse, and physical and emotional neglect	No comparison group	Coping with life events: This was assessed using the Trait Coping Style Questionnaire (Jiang & Zhu, 1999) which measures positive and negative coping styles. NSSI: All participants were administered a screening question which explored whether they had self-harmed in the last year, using a variety of different methods. Adverse Childhood Experiences: This was assessed using the Child Trauma Questionnaire (CTQ), As described previously.	Odds Ratios: <i>Relationship between coping and NSSI in boys and girls:</i> A significant relationship between self-harm and positive coping (PC) was observed in adolescents with ≥ 3 ACEs (OR 1.33, 1.13–1.58, $p = .001$ at low level PC vs high level PC), but the risk of self-harm significantly increased with negative coping (NC) across the childhood trauma groups (all $p < 0.001$). (Wan et al., 2020, p. 5) Results showed that the significant association of self-harm with PC was for the highest ACEs in girls only (OR 1.45, 95% CI [1.14, 1.84], $p = .003$). Although in assessing the association between self-harm and NC they found that moderate level and high-level NC were associated with significantly increased risk of self-harm across all childhood trauma groups in both girls and boys. (Wan et al., 2020, p. 5) There were no significant differences in these ORs between girls and boys, except	Strengths: - The large sample size (n 9,704) - Simple random sampling methods were used to reduce sampling bias. - A large sample size was used. - All measures used were reported to be reliable and valid. Limitations: - Exclusion of absentees on the day of school is notable as they may be more likely to be experiencing ACEs. - As results were obtained from two cities in China, generalising the results to the whole Chinese adolescent population, or other countries/cultures, should be done with caution.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
						for the relationship between self-harm and NC in girls who had 1–2 ACEs being stronger than their male counterparts (ROR was 1.61, 95% CI [1.13, 2.29] at moderate level NC; ROR was 2.11, 1.43–3.10 at high level NC; all $p < .05$). (Wan et al., 2020, p. 5) There were no interaction effects between childhood trauma groups and PC (in girls, $p = .367$ and in boys, $p = .869$), and between childhood trauma groups and NC (in girls, $p = .368$ and in boys, $p = .656$) on self-harm. (Wan et al., 2020, p. 5) <i>Relationship between coping and NSSI in junior and senior middle school students:</i> It was noted that the significant relationship of self-harm with PC was for the highest ACEs in junior middle school students only (adj OR 1.49, 95% CI [1.19, 1.87], $p = .001$). (Wan et al., 2020, p. 5) There were no interaction effects between childhood trauma groups and PC (in junior middle school students, $p = .510$ and in senior middle school students, $p = .735$), and between childhood trauma groups and NC (in junior middle school students, $p = .974$ and in senior middle school students, $p = .517$) on self-harm.	

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
						(Wan et al., 2020, p. 5)	
50	Wan et al. (Study 50) Associations of adverse childhood experiences and social support with self-injurious behaviour and suicidality in adolescents China 2019 85%	The study aimed to assess the independent and interaction effects of ACEs and social support on self-harm and suicidality in adolescents.	The sample consisted of 14,820 participants (Mage = 15.4 years, SD =1.8) recruited from randomly selected schools in three provinces in China. Of the sample, 50.2% were girls. ACEs = Having experienced childhood maltreatment and/or household dysfunction.	No comparison group	ACEs: Childhood maltreatment was evaluated by the Child Trauma Questionnaire (CTQ), as described previously. Household dysfunction: Questions were developed by the researchers and were adapted from the Centres for Disease Control and Kaiser Permanente Adverse Childhood Experiences Study in the USA (Felitti et al., 1998). Social support: Assessed using the Adolescent Social Support Scale (Ye & Dai, 2008) which is a 17 itemed self-report tool which assesses different types of available support. NSSI: All participants received a screening questionnaire which assessed whether they had self-harmed in the last year, using various NSSI methods.	Odds Ratios: Multiple adjusted odds ratios for self-harm were significantly higher with increased ACEs and lower levels of social support (all $p < .001$): 1-2 ACEs: OR 1.98, 95% CI [1.66, 2.36] 3-4 ACEs: OR 3.17, 95% CI [2.65, 3.79] 5-6 ACEs: OR 5.39, 95% CI [4.40, 6.60] - Moderate social support: OR 1.75, 95% CI [1.56, 1.95] - Low social support: OR 2.42, 95% CI [2.14, 2.73] Findings showed that when ACEs and social support were included simultaneously, there were significant effects of number of ACEs and level of social support on NSSI (all $p < .001$): 1-2 ACEs: OR 1.86, 95% CI [1.56, 2.23] 3-4 ACEs: OR 2.80, 95% CI [2.34, 3.35] 5-6 ACEs: OR 4.65, 95% CI [3.79, 5.70] - Moderate social support: OR 1.61, 95% CI [1.43, 1.80] - Low social support: OR 2.00, 95% CI [1.77, 2.27].	Strengths: - Simple random sampling was used. - The study sample is representative of China as it covers both rural and suburban regions. - Use of a very large sample (n = 14,820) - All measures used were shown to be reliable all $\alpha > 0.7$. Limitations: - Exclusion of absentees on the day of school is notable as they may be more likely to be experiencing ACEs. - The use of self-reported measures may have led to responder biases.
51	Wang et al. (Study 51)	The study aimed to assess the mediating role of self-esteem in	The final sample was comprised of 9,704 participants (aged 11–19	No comparison group	Non-suicidal self-injury behaviour: All participants received a screening questionnaire	Mediation Analyses:	Strengths: The sample was representative, as obtained

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	Mediating effects of self-esteem in the relationship between childhood maltreatment and non-suicidal self-injury among adolescents: The roles of sex and only-child status. China 2020 85%	the relationship between childhood abuse and self-harm.	years) who completed surveys. They were recruited from junior, middle and high schools in two cities in China. Out of the total sample, 4,600 were boys, and 5,104 were girls. ACES = Sexual abuse, physical abuse, emotional abuse and emotional neglect and physical neglect.		which assessed whether they had self-harmed in the last year, using various NSSI methods. Self-esteem: This was assessed using the Rosenberg self-esteem scale (RSES; Rosenberg, 1965), as described previously. Childhood maltreatment: was evaluated using the Child Trauma Questionnaire (CTQ; Bernstein et al., 1997), as described previously	The association between childhood abuse and self-harm was mediated by self-esteem in all models: - For boys, indirect effect of self-esteem was significant, $b = .012$, 95% CI: [.007- .017] - For girls, indirect effect of self-esteem was significant, $b = 0.009$, 95% CI: [.006 - .014] - For only child status, indirect effect of self-esteem was significant, $b = .017$, 95% CI: [.010- .026] - For those with siblings, indirect effect of self-esteem was significant, $b = 0.008$, 95% CI: .005- .011] In the whole sample, the indirect effect of childhood abuse on self-harm contributed to 21.3% of the total effect. The ratio in the sample of boys was 36.9% and the ratio in the sample of girls was 15.7%	participants from both rural and suburban areas in China. - Large sample size ($n = 9,704$). - There was a high response rate. - Simple random sampling was used. Limitations: - Caution should be used when generalising results to other countries/cultures. - Self-harm has been assessed using one question instead of valid and reliable psychometric tool. - As measures used were self-report, students may have underreported their experiences, due to the sensitive nature of the topic.
52	Weaver et al. (Study 52) Self-injurious behaviours, PTSD arousal, and general health complaints within a treatment-seeking sample of sexually abused women US 2004	The study aimed to investigate whether the level of PTSD arousal would mediate the association between childhood sexual abuse severity and self-harm.	The sample consisted of a total of 89 women (aged 18 to 56; $M_{age} = 33.06$, $SD = 9.28$). All participants were survivors of CSA pursuing treatment for PTSD. All participants were women and 82% of the sample were White/Caucasian.	No comparison group.	Sexual abuse history: To assess this, an adapted version of a structured interview applied in multiple studies with survivors of sexual assault (e.g., Resick et al., 1988) was used to establish characteristics of CSA. Mental health: This was assessed using the General Health Questionnaire (GHQ; Goldberg & Hillier, 1979) and is a self-report tool which assess various psychopathology.	Mediation Analyses: The test of mediation suggested that PTSD arousal mediated the association between age of onset of the CSA and self-harm behaviour. Age of onset for sexual abuse was a significant predictor of self-injurious behaviour prior to PTSD symptoms being controlled for ($b = -.28$, $p < .001$). However, once PTSD symptoms were controlled for the relationship between age onset of CSA and SIB became non-significant ($b = -.18$, $p < .07$) which is suggestive of a full mediation effect.	Strengths: - All measures had acceptable and above rates of reliability ($0.7 > \alpha$) - The study reports non-significant results. Limitations: - Participants consisted of survivors of CSA, all of whom were experiencing difficulties with PTSS. The

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	65%		ACEs = CSA		SIB: This was assessed using the Habit Questionnaire (HQ; (Resnick & Weaver, 1994) which is an 11-item self-report tool developed to measure different methods of self-harm. PTSD symptoms: This was assessed using the PTSD Symptom Scale-Self-Report (PSS-SR); Falsetti et al., 1993) which measures the occurrence and severity of PTSD symptomatology.		results should not be generalised to other forms of childhood abuse and even to survivors of CSA who have not sought treatment. - Sample was not ethnically diverse, so caution should be taken when comparing to other ethnicities. - All self-report measures used which could lead to responder biases.
53	Weierich & Nock (Study 53) Posttraumatic Stress Symptoms Mediate the Relation Between Childhood Sexual Abuse and Nonsuicidal Self-Injury US 2008 65%	The study aimed to assess whether PTSD symptoms will mediate the association between childhood abuse and self-harm/	The final sample consisted of 86 participants (aged 12–19; M = 17.03, SD = 1.92) Participants were recruited via advertisements placed within a range of settings (online and offline). Out of the total sample, 67 were women and 19 were men. In terms of ethnicity, 73% were Caucasian. ACEs = Physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect.	No comparison group	Childhood abuse: assessed past occurrence of childhood abuse using the Child Trauma Questionnaire (CTQ; Bernstein et al., 1997) – as described previously. Nonsuicidal self-injury: Assessed using the Self-Injurious Thoughts and Behaviours Interview (SITBI; Nock et al., 2007) – as described previously. PTSD symptoms: Traumatic experiences and PTSD symptomatology were measured by administering the ‘PTSD module’ of the Kiddie Schedule for Affective Disorders and Schizophrenia—Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997).	Mediation analyses and Sobel tests: CSA was significantly associated with re-experiencing symptoms ($b = .28, p < .05$) and re-experiencing symptoms were significantly associated with NSSI frequency ($b = .46, p < .001$). CSA was significantly associated with ($b = .32, p < .05$) until re-experiencing symptoms were controlled for and then CSA was no longer a significant predictor of NSSI frequency. This is suggestive of a full mediation. The mediation effect was tested using the Sobel test which indicated the mediation effect was significant ($z = 2.15, p < .05$). In the second mediation model, CSA was significantly associated with avoidance/numbing symptoms ($b = .48, p < .01$) and avoidance/numbing symptoms were significantly associated with frequency of NSSI ($b = .50, p < .001$). CSA was also significantly associated with NSSI frequency ($b = .32, p < .01$).	Strengths: - The study used well established, valid and reliable measures. - Attempts to minimise measurement bias were implemented by removing inconsistent responders from the data analysis. Limitations: - Non-randomised methods were used, as it was convenience sampling - The study used a relatively small sample. - The findings may not generalise to other populations, including adolescents who continue to conceal their NSSI or adolescents who self-harm and residing in inpatient settings.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
						The Sobel test showed a significant mediation effect ($z = 3.44, P < .001$). Therefore, both re-experiencing symptoms and avoidance/numbing symptoms of PTSD independently mediated the relationship between CSA and NSSI.	
54	Wong & Chung (Study 54) Child abuse and non-suicidal self-injury among Chinese university students: the role of emotion dysregulation and attachment style. China 2021 70%	The study aimed to examine the interplay between Childhood trauma, self-harm, and psychiatric co-morbidity, specifically assessing the mediating effects of emotion dysregulation and the moderating effects of attachment style.	The sample consisted of 536 participants (aged 18 to 51; $M = 20.42$, $SD = 2.29$) who were recruited from two universities in Hong Kong (one public and one private). Of the total sample, 67% were female and 99% were full-time students from Hong Kong ACEs = Physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.	Those who have engaged in NSSI in the past year ($n = 118$) compared to those who had not ($n = 418$)	NSSI: The FASM (Lloyd-Richardson et al., 2007), as described previously. Childhood trauma: CTQ-SF (Bernstein et al., 2003), as described previously) Attachment style: This was assessed using the Revised Adult Attachment Scale (RAAS; Collins, 1996) which is a self-report tool that measures insecure attachment styles in adults. Emotion regulation: The DERS (Gratz & Roemer, 2004), as described previously. Psychiatric disorders: This was assessed using the General Health Questionnaire–28 GHQ 28; Sterling, 2011) and is a self-report tool to assess various psychiatric symptomatology.	Mediational analysis: Childhood trauma was significantly associated with both positive ($r = 0.19, p < .05$) and negative ($r = 0.32, p < .001$) reinforcement. However, mediational analysis suggested that emotional dysregulation completely mitigated the impact that childhood trauma had on the functions of self-harm: - positive reinforcement (indirect effect = 0.06, $SE = 0.04$, 95% CI [-0.06, 0.11]) - negative reinforcement (indirect effect = 0.04, $SE = 0.02$, 95% CI [-0.00, 0.10]) ED also partially mitigated the impact child abuse had on psychiatric co-morbidity ($B = 0.24$, $SE = 0.09$, 95% CI [0.09, 0.10]).	Strengths: - All measures used demonstrated acceptable or above reliability on the study population. - All measures used were valid. - The study used a large sample size ($n = 536$) Limitations: - Potential sample bias in the form of self-selection bias. - Self-reported measures were used and could have led to participants given socially desirable answers, given the sensitive nature of self-harm and childhood abuse. - It is a cross-sectional design, therefore causality and temporal ordering of variables cannot be presumed.
55	Wu et al. (Study 55)	The study tested a moderated mediation model to assess the	Participants ($n = 604$) were recruited from a	There was no comparison group.	NSSI: Assessed using the Inventory of Statements About Self-injury (ISAS, Klonsky &	Mediation and bootstrapping analysis (Wu et al., 2023, p.5):	Strengths: - The Response rate was 97%.

	Author(s), title of paper, year of publication, country, quality assessment score	Study aims	Sample demographics	Comparison group	Measures used (only measures relevant to current review were outlined here)	Findings and conclusions	Strengths and Limitations
	The effects of childhood abuse, depression, and self-compassion on adolescent nonsuicidal self-injury: A moderated mediation model. China 2023 75%	effect of childhood abuse, depression and self-compassion, on self-harm.	middle school and high school in Hong Kong. The M_{age} was 14.16 years ($SD = 1.92$ years, range = 11–19). In terms of gender, 54.5 % were female. ACEs = physical abuse, emotional abuse, sexual abuse, emotional neglect and physical neglect.		Glenn, 2009), as described previously. Childhood Abuse: Assessed by the Short Form of Childhood Trauma Questionnaire (CTQ-SF, Bernstein & Fink, 1998), as described previously. Depression: Assessed using the ‘depression’ subscale from the Depression Anxiety Stress Scale (DASS21, Taouk et al., 2001) which is a self-report tool which measures depressive symptomatology. Self-compassion: This was measured using the Self-compassion Scale Short Form (SCS-SF; Raes et al., 2011) which is a 12-itemed self-report tool to assess different facets of self-compassion.	Depressive symptoms partially mediated the association between childhood trauma and self-harm (indirect effect = 0.05, $SE = 0.02$, 95 % CI [0.03, 0.09]). The mediation effect was 38.46 % of the total effect ($b = 0.13$, $SE = 0.02$, 95% CI [0.10, 0.16]). Moderated Mediation analysis (Wu et al., 2023, p.5): Self-compassion significantly moderated the impacts of childhood trauma on depressive symptoms ($b = -0.01$, $SE = 0.002$, $p < .001$) and self-harming behaviour ($b = -0.01$, $SE = 0.002$, $p < .001$). However, the impact of depressive symptoms on self-harm was not significantly moderated by self-compassion ($b = -0.007$, $SE = 0.004$, $p = .10$). Simple Slopes analyses (Wu et al., 2023, p.5): In terms of low levels of self-compassion, the association between childhood trauma and depressive symptoms was significant ($b_{simple} = 0.17$, $t = 9.06$, $p < .001$). In terms of high levels of self-compassion, the association was not significant ($b_{simple} = 0.03$, $t = 1.07$, $p = 0.29$). The direct effect of childhood trauma on self-harm varied in relation to the level of self-compassion noted. The direct effect of childhood trauma was more notable for participants with lower levels of self-compassion (direct effect = 0.11, $SE = 0.02$, 95 % CI [0.08, 0.15]) when	- Stratified random cluster sampling was used to select a total of 26 classes. - Use of valid and reliable measures Limitations: - As participants were recruited from Hong Kong only, the findings from this study are not generalisable to the whole Chinese population. - Use of self-report measures may have led to various responder biases, such as social desirability bias. - The study reports childhood abuse as one factor, does not separate results into different types of abuse.

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						compared to participants with higher levels of self-compassion (direct effect = 0.001, SE = 0.02, 95 % CI [− 0.05, 0.05]).	

Descriptive Data Synthesis

Participants

Random and non-random sampling methods were adopted in the included studies. Regarding non-randomisation, twenty-one studies used convenience sampling (studies 2; 3; 8; 11; 15; 17; 18; 21; 23; 27; 29; 31; 32; 35; 36; 39; 40; 42; 48; 53; 54) and eighteen used purposive sampling (4; 6; 5; 7; 12; 13; 14; 24; 25; 26; 30; 34; 37; 38; 43; 44; 47; 52). One paper used snowball sampling (19). In terms of randomisation, one paper used stratified random sampling (1); two used systematic random sampling (9; 41); two used simple random sampling (10; 33) and ten studies used random cluster sampling (15; 20; 22; 28; 45; 46; 49; 50; 51; 55). Overall, as non-random sampling methods were used for 73% of the studies included in the review, there is a higher risk of sampling and participant biases within these papers.

In terms of western studies, the review consisted of nineteen studies from the United States (US), four from England, two from Canada, two from Germany, two from Sweden, one from Italy, one from Norway, one from Turkey, one from Scotland and one from Australia. In non-western countries, there were seventeen studies from China, one from Singapore, one from the Philippines and two from Israel. Forty-two studies recruited participants who identified as male or female, eleven studies examined female participants only and one study examined males only (see Table 3). One paper did not specify the gender of those researched (6). The studies that used a mixed gender sample tended to have more females than males, except for seven studies that had more males than females (7; 16; 22; 26; 29; 28; 37). Therefore, there was a disproportionate number of females to males researched within the current review.

Sample sizes per study ranged significantly, from 50 participants (30) to 14,820 participants (50). The total combined number of participants across all papers was 83,394. The age range varied across studies, from ages 10 to 100. As the World Health Organisation defines adolescence as 10 to 19 years old, the same definition will be applied in terms of categorising studies across developmental periods (WHO, 2018). Twenty-three papers examined the adolescent population, and twenty-five papers examined the adult population (18 + years) (Table 3). Several studies combined both adolescent and adult populations. This included studies, which recruited participants who were aged 14 to 24 years old (34), 15- to 29-year-olds (37), 17- to 24-year-olds (23) and 16- to 65-year-olds (39). Brown et al. (2018; 9) used a sample containing individuals who were 14+ years and He and Xiang (2022; 22) used a sample consisting of individuals from 8 to 19 years old. Another study did not specify the age range of participants, although stated that they were recruited from primary, junior and high schools in China (46).

Participants were recruited from a range of settings, with twelve studies examining only adults from educational settings (2; 3; 8; 10; 11; 17; 18; 31; 35; 36; 42; 54) and thirteen studies recruiting children and/or adolescents from educational settings (1; 15; 20; 22; 26; 29; 28; 45; 46; 49; 50; 51; 55). Holden et al. (2022; 23) recruited both adolescents and adults from an educational setting. Three studies recruited from the general population (9; 19; 41); Swannell and colleagues (2012) recruited females from protective services and health centres, and two studies recruited participants from a range of community settings (48; 53). In terms of clinical populations, nine studies examined individuals from an inpatient setting (14; 25; 30; 32; 34; 43; 44; 47) and one recruited inpatients from an addiction treatment centre (7). Four studies recruited participants from the treatment seeking outpatient population (4; 6; 33; 52). Stagaki et al. (2022; 39) recruited participants from outpatient sources and a control group from the general population. The remaining studies recruited from an Israeli institution

for at-risk individuals (97); support centres for survivors of sexual abuse in Norway (40), and women from clinical, community and educational settings (13). In terms of the forensic population, participants included youth offenders (12), female prisoners (24), females from a women's and a juvenile prison (37), incarcerated males (21), individuals from prisons and the general public (16), and adolescents who had been referred for a forensic psychiatric evaluation (5).

All papers reported some form of participant demographics, the most common being age and ethnicity. Twenty-two studies reported the ethnicity of their participants to some degree, with nineteen studies reporting predominantly Caucasian samples, ranging from 55% (38) to 96.9% (13) of participants being Caucasian. Howard et al. (2017) reported that 96.6% of their participants were British but did not comment on the ethnicity of the sample. In a study conducted by Bornovalova et al. (2017), 91.4% of the participants were African American (7). Two studies (33; 46) had predominantly Chinese participants (72.2%; 82%; respectively). Twenty-nine studies did not report participant ethnicities which made it difficult for comparisons to be drawn (1; 5; 9; 14; 20; 21; 22; 25; 26; 27; 29; 28; 30; 31; 32; 34; 35; 36; 37; 40; 41; 42; 45; 47; 49; 50; 51; 54; 55).

A range of ACEs were studied across articles included in this review. Thirty-one studies measured CM as including physical, sexual and emotional abuse, and physical and emotional neglect (2; 3; 7; 9; 13; 14; 21; 19; 22; 23; 24; 25; 26; 28; 31; 32; 33; 34; 37; 39; 44; 45; 46; 47; 43; 49; 50; 51; 53; 54; 55). Two studies also included witnessing violence (11; 16), and one (26) examined all categories of CM except for physical neglect.

Li et al. (2019; 29) explored sexual abuse, physical abuse, domestic violence, household mental illness, and household substance abuse. Low and colleagues (2000; 30) examined physical and sexual abuse, physical and emotional neglect, early separations and

losses from significant persons, and domestic chaos. Domestic chaos refers to dysfunction and disorganisation in the home environment and can be portrayed as a highly emotive and fast paced family life, and a lack of routine, consistency, and structure within the household (March et al., 2020).

Reyes et al. (2019; 35) examined familial dysfunction, neglect; physical, emotional and sexual abuse; peer violence, and exposure to war/collective violence. Two studies focused only on physical abuse, sexual abuse or physical neglect (38; 41). Andersson et al. (2022; 1) studied only emotional, physical and sexual abuse. The remaining studies focused on specific childhood abusive behaviours in isolation, this included: childhood sexual abuse (CSA) (5; 6; 12; 17; 27; 36; 40; 42; 45; 48; 52), physical abuse (8), and emotional abuse (10; 20).

Measures

This section of the data descriptive synthesis provides details of the main types of measures used across the research articles. For ease of the reader, please see the table below to refer to the abbreviations of measures used.

Table 4.

Measures used and the abbreviations of these.

Name of measure and Author(s)	Abbreviation
<i>Measures: NSSI</i>	
Deliberate Self-Harm Inventory (Gratz, 2001)	DSHI
Functional Assessment of Self-Mutilation (Lloyd-Richardson et al., 2007).	FASM
Self-Injurious Thoughts and Behaviours Interview-Revised (Nock et al., 2007)	SITBI
Self-Harm Inventory (Sansone et al., 1998)	SHI
The Self-harm Behaviour Questionnaire (Gutierrez et al., 2001)	SHBQ

Habit Questionnaire (Resnick & Weaver, 1994)	HQ
Adolescent Self-Harm Scale (Feng, 2008)	DSHS
Inventory of Statements about Self-Injury (Klonsky & Glenn, 2009)	ISAS
The Ottawa Self-Injury Inventory (Cloutier & Nixon, 2003)	OSI
Comprehensive Trauma Inventory (Barnes et al. 2009)	CTI
Drugs, Alcohol and Self-Injury Questionnaire (Cassels et al., 2018)	DASI
Personality Assessment Inventory-Borderline Scale (Morey, 1991)	PAI-BOR
Life History of Aggression questionnaire (Coccaro et al., 1997).	LHA

Measures: ACEs

Childhood Trauma Questionnaire (Bernstein et al., 1997)	CTQ
Childhood Trauma Questionnaire- Short Form (Bernstein et al., 2003)	CTQ-SF
Child Abuse and Trauma Scale (Sanders & Becker-Laussen, 1995)	CATS
Comprehensive Child Maltreatment Scale (Higgins & McCabe, 2001)	CCMS
Adverse Childhood Experiences – International Questionnaire (WHO, 2018)	ACE-IQ
The Trauma Antecedent Questionnaire (Herman et al., 1989)	TAQ
Maltreatment and Abuse Chronology of Exposure (Teicher & Parigger, 2015)	MACE
Childhood History Questionnaire (Milner et al., 1990)	CHQ
The Exposure to Abusive and Supportive Environments Parenting Inventory (Nicholas & Bieber, 1997)	EASE-PI
Brief Betrayal Trauma Survey (Goldberg, & Freyd, 2006)	BBTS
Parental Bonding Instrument (Parker et al., 1979)	PBI
Abuse and Perpetration Inventory (Lisak et al., 2000)	API
The Behavioural Risk Factor Surveillance System (CDC, 2019)	BRFSS

Measures: Other Variables

Dissociative Experiences Scale (Bernstein & Putnam, 1986)	DES
Adolescent Dissociative Experiences Scale (Armstrong et al., 1997)	A-DES
Child Dissociative Checklist (Putnam et al., 1993)	CDC
Curious Experiences Survey (Goldberg, 1999)	CES
ADES (Armstrong et al., 1997)	
Impact of Events Scale (Horowitz et al., 1979)	IES
The Post-Traumatic Stress Disorder Checklist (Wethers et al., 2013)	PCL-5
The Modified PTSD Scale – Self Report (Falsetti et al., 1993)	PSS-SR
The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (Kaufman et al., 1997)	K-SADS-PL

Measures: NSSI

The assessment of NSSI is typically carried out using a self-report process, either in the form of an interview or a questionnaire. Regarding the measures used in the studies reviewed, abbreviations will be used due to the number of different instruments being described and for which the full-length descriptions can be found in Table 3. Nine studies administered the DSHI (Gratz, 2001) in their study (2; 3; 17; 18; 19; 23; 31; 42; 44) and five studies (33; 36; 37; 43; 53) administered the FASM (Lloyd-Richardson et al., 2007). Weierich and Nock (2008; 53) used the SITBI (Nock et al., 2007) and utilised the full interview, with further studies using one item (1; 9) or two items from it (4). One study used the subscale measuring DSH acts from the SITBI (10).

Three studies (16; 35; 40) used the SHI (Sansone et al., 1998) and two studies (45; 46) used the MASHS (Feng, 2008). Other measures used included the SHBQ (Gutierrez et al., 2001; 8), the HQ (Resnick & Weaver, 1994; 52), the DSHS (Feng, 2008; 15), the Chinese version of the Self-Harm Questionnaire (Lang & Yao, 2018; 28), and the ISAS (Klonsky & Glenn, 2009; 32; 55). Hu et al. (2023; 25) measured self-harm by administering the Clinician-Rated Severity of Non-Suicidal Self-Injury (CRSNSSI; APA, 2013). Qian et al. (2022; 34) used the NSSI criteria recommended by the DSM-5 (APA, 2013), to divide participants into either a NSSI group or the non-NSSI group.

Six studies used a specific item(s) in relation to NSSI from well-established psychometric assessments including the FASM (Lloyd-Richardson et al., 2007) (10), the OSI (Cloutier & Nixon, 2003) (11), the Lifetime Suicide Attempt Self-Injury (Linehan & Comtois, 1996) (12), the Youth Risk Behaviour Surveillance System (Centres for Disease

Control and Prevention, 2018) (29), the CTI (Barnes et al. 2009) (38), and the SHI (Sansone et al., 1998) (7). One of the problems noted is that those who have engaged in self-harming behaviours using other methods than those defined in the measures, would be erroneously categorised as non-self-harmers, i.e., if someone burnt themselves as a form of self-harm but this was not included in the list of self-harming behaviours provided. Stagaki et al. (2022; 39), took separate items, from three separate measures (DASI, Cassels et al., 2018; PAI-BOR, Morey, 1991; LHA, Coccaro et al., 1997) to assess a history of self-harm.

Some studies developed their own questionnaires to assess NSSI. Two studies assessed NSSI with self-report questionnaires developed by the clinic in which the researchers worked (6; 14). Swannell et al. (2012; 41) collected data over the telephone by reading out a definition of NSSI to the participants, asking about their engagement in such behaviours. Including a definition of NSSI in the study could have resulted in reduced self-report biases, as what was considered NSSI was not open to interpretation by participants. Other methods used included asking whether participants had engaged in seven different NSSI behaviours in the last year (20) and assessing DSH with the dichotomous item “Have you ever deliberately self-harmed?”; if they answered yes, they were then asked to detail the methods of DSH used (24).

Four studies appeared to use the same questions to assess NSSI which involved participants being asked whether they had engaged in eight different NSSI behaviours with the intention of deliberately harming themselves but without suicidal intent (26; 49; 50; 51). He and Xiang (2022; 22) listed 10 different forms of NSSI and Gu et al., (2021; 21) listed six forms of NSSI, both asking participants to rate the frequency in which they had engaged in such behaviours. Dodd et al. (2021; 13) utilised an ecological momentary assessment survey to collate information on the participants’ engagement in NSSI over a two-week period. Each

participant was then given an average number of times they engaged in NSSI during this time.

Some studies gave limited information on how they determined DSH amongst participants. Lev-Wiesel and Zohar (2014; 27) assessed DSH as part of the demographic variables questionnaire they developed, however, specific questions were not detailed. Similarly, Turell and Armsworth (2003; 48) stated that their female participants were assigned into groups based on the presence and absence of self-harming behaviour. Low et al. (2000; 30) established occurrence of DSH using the data that was collected from a previous 30-month incidence study; the details of which were not included in their published article. Lastly, Bikmazer et al. (2022; 5), reported that information on self-harm was gained as part of the interview process but did not specifically state what was asked.

Studies established the presence of NSSI using different timeframes. Some studies assessed NSSI as occurring at any point over a participant's lifetime (1; 2; 3; 5; 6; 7; 8; 9; 12; 14; 15; 17; 18; 19; 22; 24; 31; 32; 35; 38; 39; 40; 41; 42; 43; 46; 44; 52; 53; 54; 55). Other studies assessed DSH that had occurred in the last 12 months (25; 26; 20; 21; 29; 33; 34; 36; 37; 49; 50; 51), the last 6 months (11; 28; 47), the last month (4), and over a 2-week period (13). Due to the lack of information given, the reviewer was unable to establish the timeframes used in the assessment of DSH in three studies (27; 30; 48).

As detailed above, there was a lot of variation in the use of tools/measures administrated by the researchers to assess for NSSI, with some researchers developing their own tools. Such variation will undoubtedly influence the results and comparisons made between studies. However, the use of appropriate, valid and reliable tools was assessed as part of the quality assessment process. Overall, the vast majority of studies included in the SLR utilised valid and reliable tools to measure the occurrence of NSSI.

Measures: ACEs

Different measures of ACEs were implemented across studies but were mainly self-report methods in the form of questionnaires and interviews. Although retrospective reports of childhood abuse are problematic, given the possibility of under/over reporting or issues regarding false memory (Short et al., 2000), it allows large amounts of data to be obtained from larger population samples. Given the sensitive nature of ACEs, distributing anonymous self-report questionnaires may promote honest responses (Ong & Weiss, 2000).

The most frequently used tool to assess ACEs was the CTQ (Bernstein et al., 1997), which was administered in eighteen studies (4; 13; 14; 21; 22; 24; 32; 34; 39; 43; 44; 45; 46; 47; 49; 50; 51; 53), with two studies using limited items (41; 42). Eleven studies used the CTQ-SF (Bernstein et al., 2003), which is a shorter version of the CTQ (7; 15; 23; 25; 26; 28; 31; 33; 37; 54; 55).

Two studies used CATS (Sanders & Becker-Lausen, 1995) to assess the occurrence of CM (2; 3), while another (11) used the CCMS (Higgins & McCabe, 2001). Additional measures included the ACE-IQ (WHO, 2018) (19; 35), the TAQ (Herman et al., 1989) (30), the MACE (Teicher & Parigger, 2015) (16), and the trauma history profile taken from the UCLA PTSD Reaction Index for DSM-5 (UCLA-PTSD-5; Steinberg et al., 2013) (36).

Several studies used subsections from well-established measures such as the physical abuse scales from the CHQ (Milner et al., 1990) (8), the emotional abusiveness subscale from the EASE-PI (Nicholas & Bieber, 1997) (1), the CSA items from the (BBTS; Goldberg, & Freyd, 2006) (17), the psychological abuse subscale from the CPANS (Deng et al., 2007) (20), and three items from the UCLA PTSD-RI (Feng, 2008) (12) were used to establish CSA. Gratz (2006; Study 18) used two different measures to establish CM, which included the API (Lisak et al., 2000) for physical and sexual abuse and the PBI (Parker et al., 1979) to

assess emotional abuse and neglect. Overall, the measures used in the studies were reported to have sufficient levels of reliability and validity.

Three studies developed their own tools to assess ACEs within their research sample. Of these, one study developed a demographic variables questionnaire that assessed history of abuse and neglect (27), and another (29) based their own questions on the ACE module from the BRFSS (CDC, 2019). The remaining study (52) reported using an adapted version of a structured interview used in research with rape survivors but did not specify which one. However, they reported that their measure had acceptable internal consistency with $\alpha = .74$ (Weaver et al., 2004). Bikmazer et al. (2022; 5) developed and conducted their own interview, whereby they gathered specific details regarding the traumatic experience, the victim, and the perpetrator, as well as the frequency of the trauma disclosed. Andersson et al. (2022; 1) gave different examples of emotional and physical abuse, and asked participants whether they had experienced any of these forms of abuse prior to the age of 18. Lastly, Turell and Armsworth (2003; 48) did not clearly state how they assessed the occurrence of CSA and there was a lack of detail regarding the data gathering process, which was a limitation of this study.

Although most studies within the review assessed the occurrence of ACEs themselves, three studies assumed the occurrence of ACEs solely based on where they recruited their participants from. For instance, participants were recruited from places such as a treatment programme for adult survivors of CSA (6), a support centre for survivors of CSA (40), and a Child Protective Service agency investigation (38). The latter reports screening comparison females for maltreatment experiences using both self-reports from participants and from their caregivers. This reduces the impact of self-report and mono-method biases.

Measures: Other Variables

Due to the large number of risk factors being assessed in the current review, only papers examining the most researched variables will be described in this section. For details of all measures included in this review, see Table 3.

Eleven studies examined the role of dissociation in the ACEs-NSSI relationship. Six of these studies used the DES (Bernstein & Putnam, 1986) to measure dissociative symptoms (6; 14; 24; 27; 30; 42) and one study (41) only used the depersonalisation/derealisation subscales. The DES is a well-established 36 item self-report measure used to reliably quantify dissociation and assesses depersonalisation/derealisation, absorption and amnesia subtypes (Bernstein & Putnam, 1986). Bikmazer et al. (2022; 5) used two assessments to measure dissociation, the A-DES (Armstrong et al., 1997) and CDC (Putnam et al., 1993). Gomez (2019;17) used the CES (Goldberg, 1999), which is a valid revision of the DES. Chaplo et al. (2015; 12) used the A-DES (Armstrong et al., 1997) which is a 30- item self-report measure designed to assess all subtypes of dissociation. The commonalities across studies in the valid measures of dissociation was helpful when comparing results; differences in findings could not be attributed to the use of different measures of dissociation.

When measuring post-traumatic stress symptoms (PTSS), all studies used different assessment methods and criteria, based on various versions of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2013). These included the IES (Horowitz et al., 1979; 6), the PCL-5 (Wethers et al., 2013; 7; 24) and PSS-SR (Falsetti et al., 1993; 52). These are all well-established psychometric assessments. One study (38) used the CTI (Barnes et al., 2009) and another (53) administered the K-SADS-PL (Kaufman et al., 1997), which are both clinical interviews.

Eight studies examined emotion dysregulation (ED) and six studies used the DERS (Gratz & Roemer, 2004), which is a 36-item self-report questionnaire developed to examine several dimensions of ED (12; 24; 33; 47; 54). Tasca (2021; 43) used the short form of the DERS (DERS-SF; Kaufman et al., 2015). The psychometric properties of the DERS-SF have been assessed and shown to produce alike correlation patterns comparative to the full measure ($r = 0.90$ to 0.98) (Kaufman et al., 2015). Lastly, Qian et al. (2022; 34) administered the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2022) to assess cognitive emotional regulation strategies.

Quality of studies

Only studies that had a total quality assessment score of 60% or over were included in the review as it was felt that this would improve the reliability of the results gained from the systematic review. The poorer the quality of the studies, the higher the risk of biases that could affect the validity of the findings. There were variations in the overall quality assessment scores of all papers, with the lowest quality score being 60% (12; 35) and the highest being 100% (28). The papers which were quality assessed as the lowest (12; 35) used convenience sampling; no consideration was given to non-responders, and their methods were insufficiently described.

Samples used in the lower scoring papers tended not to be fully representative of the target population, meaning the results gained were limited in terms of generalisability. Convenience sampling was used for twenty-one studies and as such, sample biases were inherently increased for these studies as randomisation methods were not employed to help mitigate the effects of biases such as self-selection and non-responder biases (Downes et al., 2016). Only fifteen (27%) of the studies employed randomisation methods and as such, were considered as more highly representative of the target sample population (as referenced

previously). However, even when using randomisation, the studies that recruited adolescents from schools inevitably excluded those who were absent on the day of the study due to its cross-sectional design. Those who are exposed to multiple ACEs are less likely to attend school (Webster, 2022) and as such, the variables being investigated may have been more prevalent in those individuals (1; 28; 46; 49; 50; 51; 55).

Overview of findings

The differing aims, methods and analyses used across all fifty-five papers have made the grouping of results a complex undertaking, particularly as there were numerous factors that have only been assessed by one study. The risk factors reviewed by each study are detailed in Table 5. Some papers studied more than one potential risk factor and if so, this was indicated with extra factors detailed in Table 5. Due to differences across studies, it was considered appropriate to conduct a narrative synthesis of findings.

Table 5*Risk factors for the NSSI-ACE relationship*

	Comorbid &/or other disorders (inc. psychological health state)	Depression (inc. suicidal concerns) &/or anxiety	Dissociative sympt.	Distress tolerance	Impulse	Attachment style	IPV	Explanatory Style	PTSD/PTSS	Genetics	Ability to Express emotions	Sexual identity or identity confusion	Emotion reg/dys.	Potency	PPT	Self-blame/self-hatred/shame & or self-compassion	Resilience	Coping style	Social Support or loneliness	Self-esteem	Psycheache (as defined in text)
Andersson et al (2022)									✓				✓								
Arens et al (2012)					Urgency ✓																
Arens et al (2014)				+ negative urgency ✓	Urgency ✓																
Auerbach et al (2014)	✓																				
Bikmazer et al (2022)			✓																		
Bolen et al (2013)			✓			Insecure attachment ✓			✓												
Bornovalova et al (2011)									✓												
Brausch & Holaday (2015)		✓																			
Brown et al (2015)		+ anxiety ✓																			
Buser & Hackney (2012)								✓													
Caron et al (2017)							✓														
Chaplo et al (2015)			+ emotion dysregulation ✓																		
Dodd et al (2021)															✓	✓					

	Comorbid &/or other disorders (inc. psychological health state)	Depression (inc. suicidal concerns) &/or anxiety	Dissociative sympt.	Distress tolerance	Impulse	Attachment style	IPV	Explanatory Style	PTSD/PTSS	Genetics	Ability to Express emotions	Sexual identity or identity confusion	Emotion reg/dys.	Potency	PPT	Self-blame/self-hatred/shame & or self-compassion	Resilience	Coping style	Social Support or loneliness	Self-esteem	Psycheache (as defined in text)
														✓							
Li et al (2022)												✓									
Low et al (2000)			✓																		
Manna et al (2021)																			✓		
Nilsson et al (2022)																✓					
Peha et al (2017)													✓								
Qian et al (2022)		✓																			
Reyes et al (2019)															✓						
Roley-Roberts et al (2022)		✓											✓								
Rong et al (2022)																				✓	
Shenk et al (2010)									✓												
Stagaki et al (2022)						✓ ⁺ mentalising															
Steine et al (2020)	Eating disorders & insomnia ✓	✓							✓										✓		
Swannell et al (2012)			✓												Alexithymia ✓	✓					
Talmon & Gingzburg (2018)			✓												narcissism ✓						
Tasca 2021													✓								
Thomassin et al (2016)											✓										
Tian et al (2020)													✓				✓				

[illegible]

Results and Discussion

Table 5 shows the various risk factors that have been researched in a population of those with ACEs, with a comprehensive review of these findings being reported below. Given the wide range of risk factors investigated and the differing types of research methods utilised across the papers, the decision was made to conduct a narrative synthesis of findings whereby findings are categorised into themes and discussed under these theme headings. Following the reporting of themes across the literature, the strengths and limitations of the review, implications for practice, and recommendations for future research are discussed.

Themes Derived from Narrative Synthesis

Post-Traumatic Stress Disorder (PTSD)/ Post-Traumatic Stress Symptoms (PTSS).

Seven studies examined the role of PTSS in the ACE-NSSI relationship and all agreed that PTSS played a role in this relationship to some extent. Andersson et al. (2022; 1) studied the role of trauma symptoms (TS) in the relationship between childhood abuse (specifically physical, emotional and sexual abuse) and NSSI in adolescents recruited from high-school in the UK. They found that TS partially mediated the relationship between emotional abuse and NSSI (direct effect = 0.11, $p < .001$; mediated effect = 0.20, $p < .001$), physical abuse and NSSI (direct effect = 0.07, $p < .001$; mediated effect = 0.17, $p < .001$), and sexual abuse and NSSI (direct effect = 0.13, $p < .001$; mediated effect = 0.16, $p < .001$). In terms of TS factors, the study found that depression and PTSD symptoms were the most noteworthy mediators.

Bolen et al. (2013; 6) recruited adult survivors of CSA and found that those who engaged in NSSI experienced greater intrusive PTSS ($\bar{x} = .46$, $F = 12.028$, $p < .001$) compared to those who did not ($\bar{x} = -.28$). The study reported an ANOVA using the mean of distribution, as opposed to including data on the degrees of freedom. Bornoalova et al. (2011; 7) recruited substance using adult inpatients (72% male; mean = 43.05 years, SD =

9.86; 91.4% African American) and found significant effects of CSA on DSH via PTSS ($b = 1.720$, $SE = .614$, $p < .01$). Odds Ratios (OR) indicated that PTSS had a strong relationship with DSH (ORs 5.57, 95% CIs [1.68, 18.49]), increasing the odds of engaging in DSH by a factor of greater than 5. r

Shenk et al. (2010; 38) compared maltreated ($n = 129$) and non-maltreated ($n = 82$) US female adolescents in terms of experiencing PTSS, depression and psychological dysregulation. Results from a multiple mediator test demonstrated that the total indirect effect for all variables was significant ($Z = 3.21$, $p < .001$), with this set of variables mediating the CM and NSSI relationship. Furthermore, PTSS was the only indirect pathway which mediated the association between maltreatment and self-harm ($Z = 2.71$, $p < .01$). Weaver et al. (2004; 52) investigated whether the level of PTSD arousal would mediate the CSA and self-harm relationship. All participants were adult women ($M = 33.06$ years, $SD = 9.28$) seeking treatment for PTSD symptoms related to CSA. Mediation analysis suggested that PTSD arousal mediated the relationship between age of onset of the sexual abuse and current SIB. Age of onset for sexual abuse was a significant predictor of self-injurious behaviour prior to PTSD symptoms being controlled for ($b = -.28$, $p < .001$). However, once PTSD symptoms were controlled for the relationship between age onset of CSA and SIB became non-significant ($b = -.18$, $p < .07$), which was indicative of a full mediation effect.

Weierich & Nock (2008; 53) recruited adolescents ($M = 17.14$ years, $SD = 1.88$; 77% female) from the community and in their first mediation analysis, found that CSA was only significantly associated with NSSI ($b = .32$, $p < .05$) until re-experiencing symptoms were controlled for and then CSA was no longer a significant predictor of NSSI frequency. This was consistent with a full mediation effect, and a Sobel test revealed the mediation effect was significant ($z = 2.15$, $p < .05$). In the second mediation model, CSA was also significantly associated with NSSI frequency ($b = .32$, $p < .01$) until re-experiencing symptoms were

controlled for indicating a full mediation effect. The Sobel test showed a significant mediation effect ($z = 3.44, p < .001$). Thus, both re-experiencing symptoms and avoidance/numbing symptoms of PTSD independently mediated the relationship between CSA and NSSI.

Howard et al. (2017; 24) recruited female prisoners ($M = 34.52$ years; 96.6% British) and PTSD symptoms were assessed by the administration of the PTSD Symptom Checklist for the DSM-5 (PCL-5; 24). When testing PTSD symptoms overall, a mediation effect was not confirmed by bootstrapped confidence intervals ($b = 0.012$, 95% CI [0.000-.030, $p = .069$]). Following on from this, the subscales of the PCL-5 were entered as mediators to assess for individual effects, with only the *alterations in arousal and reactivity* subscale significantly mediating the CM and DSH relationship ($b = 0.014$, 95% CI [0.004-.031, $p = .021$]). This suggests that only PTSD symptoms associated with alterations in arousal and reactivity explained the association between CM and DSH, whilst other symptoms of PTSD (i.e., avoidance/numbing symptoms) did not. It was surprising that the overall PCL-5 scores did not report a mediation effect, given the findings by Weierich and Nock (2008; 53). However, the difference in results could be attributed to the study (53) using the K-SADS-PL (Kaufman et al., 1997) to assess PTSD, which is an interview schedule relevant to the DSM-IV. Another study (24) used the PCL-5, which is a measure used to assess the DSM-5 version of PTSD symptoms, which includes different criteria to the DSM-IV and therefore, the measures used and criteria being assessed may have led to the differing results.

Overall, the mediational studies have shown that general PTSS either fully (38; 52) or partially (1) mediated the relationship between childhood abuse and NSSI. Other studies found specific PTSS such as re-experiencing (53), avoidance (53) or changes in arousal and reactivity (24) mediated the relationship. Research also showed that adult survivors of CSA who engaged in NSSI experienced greater PTSS than those who did not self-harm (6), as well

as being significantly more likely to engage in NSSI if experiencing PTSS (7). Therefore, the presence of PTSD/PTSS appeared to be linked to an increased risk of NSSI in a person with a history of ACEs.

Dissociative Symptoms

Out of ten studies which explored dissociative symptoms, all but one (24) reported findings that suggested dissociative symptoms play a role in the NSSI and ACEs relationship. Some studies found a stronger association (6; 27; 14; 17) than others (5; 12; 24; 30; 41; 42). Bolen et al. (2013; 6) recruited adult survivors of CSA and found that those who engaged in self-harm reported greater dissociative symptoms ($\bar{x} = .55$, $F = 18.905$, $p < .001$) compared to those who did not ($\bar{x} = -.36$). Similarly, Lev-Wiesel and Zohar (2014; 27) examined adolescents recruited from an institution for at-risk females in Israel. MANOVA results suggested that dissociation served as a mediating variable in the CSA and SIB relationship ($F(1, 89) = 4.12$, $p < .05$). Furthermore, girls who engaged in SIB reported significantly higher rates of dissociation when compared to girls who did not report SIB ($t(69) = 3.11$, $p < .01$).

Gomez (2019; 17) recruited American university students ($M = 19.81$ years, $SD = 2.61$ years; 65% female) and examined the role of depersonalisation in the CSA and NSSI relationship. Depersonalisation refers to a specific form of dissociation that involves a chronic and incapacitating shift in an individual's experience of the self and environment, mainly in the form of detachment (Medford et al., 2005). This study found that high betrayal adolescent sexual abuse (HBASA) was no longer significantly associated with NSSI after controlling for depersonalisation ($B = .0334$, $p = .5877$), consistent with a full mediation effect. Bootstrapping analysis revealed there was an indirect effect on NSSI through depersonalisation ($B = .0369$, 95% CI [.0049, .1116]). Similarly, Franzke et al. (2015; 14) examined adults from an inpatient trauma specialist clinic in Germany and reported that the

indirect effect of CM on NSSI through dissociative symptoms emerged as significant ($\beta = .42, p < .05, 95\% \text{ CI } [0.01, 0.40]$).

Swannell et al. (2012; 41) examined the mediational properties of dissociative experiences within the Australian general adult population (mean = 52.11 years, SD = 16.89). With regards to females, dissociation reduced the direct effect of any type of CM on self-harm (5% reduction of OR, $p = .003$). Dissociation also significantly reduced the direct effects of physical abuse (OR reduced by 6.1%, $p = .004$) and neglect (OR reduced by 3.2%, $p = .004$) on self-harm. In male participants, dissociation significantly reduced the direct effect of all types of childhood abuse on self-harm (12.9% OR reduction, $p = .003$), with dissociation having the largest effect on the direct effect of physical abuse on self-harm (OR reduction of 12.3%, $p = .006$). Swannell et al. (2012; 41) concluded that CM, particularly physical abuse, was significantly related to the development of self-harm and may have been partially mediated by dissociative experiences for both males (OR decreased by 12.9%, $p = .003$) and females (OR reduction of 5.0%, $p = .003$). Talmon and Ginzburg (2018; 42) recruited Israeli university students (mean = 25.95 years, SD = 13.70; 65% female) and found the indirect effect of sexual abuse on self-harm via dissociation was significant (95% CI [.01, .03]). The direct effect also remained significant ($b = .17, p < .001$). Therefore, the findings suggested that dissociation only partially mediated the CSA and self-harm relationship within this population.

Low et al. (2000; 30) recruited female inpatients from a high secure hospital in England (N = 50) and examined the role of dissociation in the CSA-NSSI relationship. Path analysis demonstrated a clear link between CSA and NSSI, with it occurring via dissociative symptoms. Path analysis also demonstrated that CSA remained significantly associated with self-harm ($b = .203, p < .05$) when dissociation was introduced into the model, which was suggestive of a partial mediation effect. However, it should be noted that this study used a

relatively small sample size, which may have impacted the results. Furthermore, Bikmazer et al. (2022; 5) conducted a hierarchical logistic regression analysis and found that scores on the Child Dissociative Checklist (CDC; Putnam et al., 1993) increased the risk of NSSI (OR = 1.23; 95% CI [1.05, 1.44]).

Chaplo et al. (2015;12) recruited justice involved youths from a detention centre in the US (M = 16.11 years, SD = 1.31; 74% male), where both dissociation and emotion dysregulation were investigated as potential mediators of the relationship between CSA and NSSI. A regression analysis included both factors as mediators, controlling for one another. However, although reduced, the direct effect between SA and NSSI remained significant even with the introduction of dissociation and ED ($B = 1.88$, $SE = .37$, $p < .001$), which was consistent with a partial mediation effect. Bootstrapped indirect effect results were also consistent with partial mediation, when including both emotion dysregulation and dissociative experiences ($B = 0.12$, 95% CI [0.03, 0.31]). Interestingly, dissociation ($B = -0.002$, 95% CI [-0.15, 0.13]) did not emerge as an independent mediator when ED was controlled for. This finding supported theoretical work proposed by Klonsky (2007) who argued that dissociation plays a critical but not exclusive role in the onset of NSSI. Similarly, Howard et al. (2017; study 24) found that dissociative symptoms did not mediate the relationship between ACEs and self-harm, with the mediation effect being non-significant. It should be noted that dissociation has the most established link with CSA and physical abuse (Vonderlin et al., 2008) and as this study examined CM generally, this may have masked and/or diluted the effects of specific CM types.

Therefore, most findings suggested dissociative symptoms play a role in the NSSI and ACEs relationship. Although, some studies found a stronger association (6; 27; 14; 17) than others (5; 12; 24; 30; 41; 42). Howard et al. (2017; 24) found dissociation did not mediate the NSSI-ACE relationship, however, this paper had a quality of 65%, which was one of the

lower scoring studies included in the review. Overall, it appears that the presence of dissociative symptoms increased the risk of NSSI in those with a history of ACEs.

Emotion Dysregulation (ED)

Ten studies investigated the role of ED in the ACE-NSSI relationship, with three papers finding that ED did not play an independent mediating role (12; 24;36) and seven papers evidencing that it did (1; 25; 33; 34; 43; 47; 54).

Chaplo et al. (2015; 12) examined the youth offending population recruiting adolescents from a juvenile detention centre in the US and found that ED did not independently mediate the relationship between CSA and NSSI ($B = 0.04$, 95% CI $[-0.13, 0.58]$) when dissociation was controlled for. Roley-Roberts et al. (2022; 36), investigated the role of ED in the childhood CSA-NSSI relationship in American university students. Mediation analyses demonstrated that none of the subscales of the DERS (Gratz & Roemer, 2004) mediated the CSA-NSSI relationship, with all results being non-significant ($p > .05$). Similarly, Howard et al. (2017; 24) studied female prisoners in the UK and found that neither ED nor dissociation made a significant independent contribution, whilst controlling for the other. A multiple mediation analysis found that ED and PTSD simultaneously mediated the relationship between CM and self-harm ($b = 0.023$, 95% CI $[0.008 - .043]$), and again, neither ED nor PTSD symptoms made a significant independent contribution, whilst controlling for the other. Performing a multiple mediation analysis using the variables of ED and dissociation to assess the effect of both variables simultaneously on the CM and self-harm relationship, they found that the pair of variables did act as a mediator ($b = 0.015$, 95% CI $[0.002 - .036]$).

Peh et al. (2017; 33) found that ED mediated the association between CM and DSH after examining a clinical population of adolescents recruited from an outpatient psychiatric

facility in Singapore ($M = 17.0$ years, $SD = 1.65$; 59.3% female). Path analysis demonstrated a significant indirect effect of childhood abuse on DSH through ED ($B = 0.07$, $p < 0.05$, 95% CI [0.02, 0.16]). Titelius et al. (2017; 47) also examined a clinical adolescent population, where they recruited adolescents (ages 12–18; 81% female) from psychiatric inpatient populations in the US. They found that ED was significantly related to rates of NSSI ($b = .37$, $p = .003$) and higher levels of ED were associated with higher levels of NSSI. A mediation analysis demonstrated that ED mediated the association between childhood abuse (physical and emotional) and NSSI (effect = .386, 95% CI [0.431–1.177]).

Andersson et al. (2022; 1) examined adolescents recruited from a high school in Sweden and found that ED partially mediated the relationship between NSSI and emotional abuse (direct effect = 0.17, $p < .001$; mediated Effect = 0.14, $p < .001$), physical abuse (direct effect = 0.12, $p < .001$; mediated effect = 0.12, $p < .001$) and sexual abuse (direct effect = 0.18, $p < .001$; mediated effect = 0.11, $p < .001$). In terms of ED factors on the DERS (Gratz & Roemer, 2004) and across all types of abuse, the following categories carried smaller but significant mediating effects: Non-acceptance, Clarity, and Goals. The domain measuring impulsivity was found not to have a mediating effect. Hu et al. (2023; 25) recruited adolescents from high schools in China and found that ED mediated the relationship between childhood abuse and NSSI, with an indirect effect of $\beta = 0.195$ ($p = .010$). When considering the mediating effect of ED and depressive symptoms, the total indirect effect was highly significant ($\beta = 0.293$; $p = .010$), while there was no significant direct effect in the pathway from childhood maltreatment to self-harm in the model ($\beta = 0.107$, $p = .260$). This meant that ED and depression combined fully mediated the relationship between CM and NSSI.

Qian et al. (2022; 34) studied the CM-NSSI relationship in those with Major Depressive Disorder (MDD) and investigated the roles of ED and stressful life events (SLE) within this. The paths from CM ($\beta = -0.27$, $p < .01$) and SLE ($\beta = -0.26$, $p < .05$) to ED and

the pathway from ED to self-harm ($\beta = 0.23, p < .05$) were both significant. The direct path from CM to NSSI remained significant ($\beta = -0.31, p < .001$), demonstrating that ED partially mediated the relationship between CM and NSSI. In terms of emotional abuse, Tasca (2021; 43) recruited a sample of adolescent psychiatric inpatients ($n = 73$, 76% female) and found that emotion regulation mediated the relationship between abuse and NSSI ($\beta = 0.08$, $SE = 0.02$, 95% CI [0.3 -0.11]). However, results of the indirect effects proposed that cognitive reappraisal ($\beta = 0.03$, $SE = 0.01$, 95% CI [-0.1 -0.2]) and expressive suppression ($\beta = 0.02$, $SE = 0.01$, 95% CI [-0.1 - 0.1]) did not mediate the relationship between emotional abuse and emotion regulation.

Wong and Chung (2021; 54) recruited adult participants (67% female; $M_{age} = 20.42$) from two universities in Hong Kong. They found that CM was significantly associated with positive ($r = 0.19, p < .05$) and negative reinforcement ($r = 0.32, p < .001$). Positive reinforcement of self-harm refers to the process by which the feelings associated with NSSI, inadvertently reinforces NSSI (Selby et al., 2014). Negative reinforcement refers to the alleviation of negative emotions and internal experiences through NSSI (Blasco-Fontecilla et al., 2016). Mediation analysis found that ED entirely removed the effect that childhood abuse had on NSSI functions, with both positive (indirect effect = 0.06, $SE = 0.04$, 95% CI [-0.06 – 0.11]) and negative reinforcement (indirect effect = 0.04, $SE = 0.02$, 95% CI [-0.00 – 0.10]).

All but two studies (34; 54) used the DERS (Gratz & Roemer, 2004), therefore, the measure used cannot be largely responsible for the differing results. Interestingly, two of the three papers that found no independent link between ED and the CM-DSH relationship, studied forensic populations. One study recruited adolescents (12) and one (24) studied adult women. Four of the studies that found an association with ED (33; 43; 47; 34) studied adolescent clinical populations who have higher rates of psychiatric morbidity and arguably, may experience more severe ED problems as a result. In support of this theory, one study

tested the effects of psychiatric comorbidity and the indirect effect indicated that comorbidity mediated the relationship between child abuse and the frequency of NSSI behaviours in the past month ($b=4.32$, $SE=0.001$, $p < .0001$) (4). Interestingly, another study (54) which assessed the general adult population, found that ED partially mediated the relationship which child abuse had on psychiatric co-morbidity ($B = 0.24$, $SE = 0.09$, 95% CI [0.09 – 0.10]).

In terms of the quality of studies, two of the three studies which did not find that ED mediated the CM-NSSI achieved lower quality scores compared to the studies which did. One paper (12) scored 60% on the quality assessment tool which was the lowest quality assessment score included in the review. The other study (24) scored similarly low in terms of quality assessment at 65%. However, it should be noted that Roley-Roberts et al. (2022; 36) scored 75% on the quality assessment, and they studied adult university students as opposed to the forensic population. For both studies which studied the forensic population (12; 24) the main concerns were the lack of randomisation, increased chance of response bias, and lack of concern regarding non-responders. Interestingly, the studies which concluded that ED fully mediated the CM-NSSI relationship scored higher in terms of the quality assessment, with four papers scoring 70% (25; 34; 43; 54), two scoring 75% (33; 47) and one scoring 85% (1). Thus, indicating that these studies were deemed to be of better methodological quality.

Problematic Personality Traits (PPT)

Four studies examined various personality traits regarding the CM-NSSI relationship (13; 21; 35; 41). All studies found that their specific PPTs played a role in the ACE-NSSI relationship, either partially or fully. Reyes et al. (2019; 35) recruited Filipino university students to assess whether PPTs mediated the relationship between ACEs and NSSI. The effect of ACEs on NSSI was significantly reduced but not eliminated, after the inclusion of

PPTs ($B = .36, p < 0.05$), consistent with a partial mediation effect. Sobel tests indicated the mediation effect was significant ($z = 5.80, SE = .021, p < .05$). Results demonstrated a partial mediation model, suggesting PPTs may have developed because of ACEs but ACEs still predicted NSSI beyond what was caused by PPTs alone.

Swannell et al. (2012; 41) recruited the Australian general population to assess whether alexithymia played a mediational role in the CM-NSSI relationship. Alexithymia is a personality trait in which an individual has trouble recognising and describing their emotions to others (Martínez-Sánchez et al., 2013). For females, alexithymia significantly reduced the direct effect of any CM on NSSI (OR decrease 6.2%, $p = .009$, at $p < .01$) and the direct effects of physical abuse and neglect on NSSI (by 6.3%, $p = .007$ and 9.4%, $p = .004$, respectively). As a result, they concluded that alexithymia partially mediated all relationships. However, for males, alexithymia did not significantly reduce the direct effect of any CM on NSSI (7.4%, $p = .023$, at $p < .01$), nor did it partially mediate the relationship between childhood physical abuse or neglect on NSSI (OR decreases = 7.05%, $p = .227$). However, this study included difficulty describing, but not identifying emotions, in their definition of alexithymia. This may have diminished the association within this relationship, given that problems in identifying emotions instead of describing emotions have been found in previous research (Polk & Liss, 2007).

Gu et al. (2021; 21) recruited incarcerated adult males from prisons in China. In terms of psychopathy, bootstrapping analysis demonstrated a significant indirect effect ($b = 0.05$, $SE = 0.01$, 95% CI [0.02, 0.08]), which accounted for 13.9% of the total effect ($b = 0.36$, $SE = 0.03$, $p < .001$) of the CM-NSSI relationship. However, the direct effect of CM on NSSI also remained significant ($b = 0.31$ $SE = 0.03$, $p < 0.001$), suggesting psychopathy is a partial mediator. The study also examined the moderating effects of cognitive reappraisal and found that it moderated the effect which psychopathy had on NSSI. The results showed the indirect

effect of psychopathy on NSSI was significantly higher for participants with lower levels of cognitive reappraisal ($b = 0.08$, $SE = 0.02$, 95% CI [0.04, 0.12]), when compared to individuals with higher levels of cognitive reappraisal ($b = -0.00$, $SE = 0.02$, 95% CI [-0.04, 0.03]). The moderated mediation effect was -0.04 ($SE = 0.01$, 95% CI [-0.07, 0.01]), suggesting that cognitive reappraisal significantly mitigated the indirect effect of psychopathy in the CM-NSSI relationship.

Lastly, Dodd et al. (2021; 13) examined symptoms associated with borderline personality disorder (BPD) as a potential mediator of the childhood trauma and NSSI relationship. Specifically, the study assessed BPD symptoms associated with impulsive actions, negative affect, atypical cognitions, and interpersonal difficulties. Results demonstrated that childhood maltreatment was significantly associated with all four potential mediators, however, *atypical cognitions* was the only factor which was found to mediate the CM-NSSI relationship. The indirect path from child maltreatment to self-harm, via atypical cognitions, was significant (path coefficient = .001, $SE < .001$, $p = .01$). Following this, further analyses were conducted to assess the specific atypical cognitions subtypes. Results showed that thought broadcasting ($\rho = .340$, $p = .01$), delusions of guilt or sin ($\rho = .299$, $p = .00$), visual hallucinations ($\rho = .190$, $p = .03$), and telepathy ($\rho = .213$, $p = .01$) were all significantly associated with NSSI when measured over the lifespan. In relation to symptom occurrence over the past two years, thought broadcasting ($\rho = .259$, $p = .00$), delusions of guilt or sin ($\rho = .299$, $p = .00$), and visual hallucinations ($\rho = .190$, $p = .03$) were also significantly correlated with NSSI. Symptoms of telepathy which occurred in the last two years was not significantly associated with NSSI. Lastly, overvaluing of ideas ($\rho = .178$, $p = .04$), delusions of persecution ($\rho = .177$, $p = .04$), and delusions of grandeur ($\rho = .192$, $p = .03$) were all significantly associated with NSSI in the past two years, but were non-significant when analysed over the lifetime.

Therefore, all studies found that their specific PPTs played a role in the ACE-NSSI relationship. The studies demonstrated that PPTs (35), Alexithymia (41) and psychopathy (21) all partially mediated the ACE-NSSI relationship. It was also found that atypical cognitions associated with BPD, was the only factor which was found to mediate the CM-NSSI relationship (13). Given the complexity and multifaceted nature of said personality traits, it was inappropriate to draw comparisons between the results.

Other Clinical Disorders

Six studies investigated the role of depression and anxiety in the ACE and NSSI relationship, with and without assessing additional factors. Two studies found that they played a role in the overall CM-NSSI relationship (25; 48); two studies found only certain types of CM were affected by depression and anxiety (12; 23); one study found they significantly predicted NSSI in the CSA population (40), and the other found a strong relationship between NSSI and depression regardless of the CSA history (27). One study also investigated the effects of sub-clinical psychotic symptoms on the ACE-NSSI relationship, with these symptoms acting as partial mediators (19).

Chaplo et al. (2015; 12) explored whether depressive and anxiety symptoms mediated the relationship between CM and DSH in a German general population ($M_{age} = 48.4$ years, $SD = 18.2$; 53.3% were female). They found that the effect of emotional neglect was not significantly mediated by depression or anxiety symptoms but found emotional abuse to be partially mediated by depressive ($b = 0.03, p = .02$) and anxiety symptoms ($b = 0.04, p = .01$). Sexual abuse and physical neglect appeared to be fully mediated by depression and anxiety symptoms, as direct effects of both factors on self-harm were non-significant, but demonstrated significant indirect effects for sexual abuse (indirect effect = 0.03, $p = .009$) and physical neglect (indirect effect = 0.02, $p = .007$).

Lev-Wiesel and Zohar (2014; 27) recruited at-risk Israeli female adolescents and found that levels of depression were significantly higher for girls who engaged in SIB, than compared to girls who did not self-harm ($t(85.11) = 3.37, p < .01$). In terms of the relationship between CSA and SIB, depression was associated with SIB, regardless of CSA history ($F(1, 89) = 4.05, p < .05$). Turell and Armsworth (2003; 48) investigated the effects of depression amongst other variables in women from the general public. Regression analyses found the model that best fit the data suggested that those who engaged in DSH were more likely to have experienced CM within their family, have a history of eating disorders, had higher rates of dissociation, and were currently more depressed.

Hu et al. (2022; 25) assessed the impact both ED and depressive symptoms had on the CM-NSSI relationship in adolescents recruited from a Chinese hospital ($N = 224$). They found an indirect effect of depression symptom severity ($\beta = 0.052, p = .028$), and an indirect effect of ED on the relationship between CM and NSSI through depression symptom severity ($\beta = 0.046, p = .010$). Therefore, depression symptom severity appeared to be a significant mediator. Wu et al. (2023; 55) recruited adolescents from schools in Hong Kong and found that depression partially mediated the relationship between CM and self-harm (indirect effect = 0.05, $SE = 0.02$, 95 % CI [0.03, 0.09]), accounting for 38.46 % of the total effect ($b = 0.13$, $SE = 0.02$, 95% CI [0.10, 0.16]).

Holden et al. (2022; 23) used a mixed sample recruited from the public online and from a Canadian University. The study assessed whether psychache (i.e., mental pain) mediated the relationship between childhood trauma and NSSI independently of depression. In the student population, results demonstrated that psychache mediated the relationship between childhood trauma and NSSI ($\beta = 0.011, p < .01$), independently of depression. Within the student population, depression did not mediate the relationship between childhood trauma and NSSI. In the community sample, psychache acted as a mediator in the childhood

trauma and NSSI relationship ($\beta = 0.147, p < .01$), independently of depression. In the community sample, depression only mediated the emotional abuse and NSSI relationship ($\beta = 0.033, p < .05$).

Steine et al. (2020; 40) examined those with a history of CSA who were recruited from a support centre for adults who have survived CSA (94.9% women). They found that anxiety symptoms ($\beta = 0.20, p = .027$), depressive symptoms ($\beta = 0.18, p = .044$), and eating disorder symptoms ($\beta = 0.15, p = .043$) significantly predicted persistent NSSI. Non-significant results were found for symptoms of insomnia, nightmare distress and relational problems.

Green and Webster (2021; 19) asked participants to complete a questionnaire investigating the role of subclinical psychotic symptoms on the relationship between self-harm and childhood adversity. Mediation analyses showed the direct effect of childhood adversity on self-harm was mitigated through *voices and visions* and *delusional ideation* (from $B = 2.219$ to $B = 1.215$). However, they did remain statistically significant ($p < .0001$) which was suggestive of a partial mediation effect.

Therefore, research found that symptoms of depression acted as a significant mediator (25) or a partial mediator (55) in the ACE-NSSI relationship, and that those who engaged in DSH were more likely to have experienced CM and were currently more depressed (48). Some studies found anxiety and depression acted as mediators only in particular childhood abuse subtypes, such as CSA (12), physical neglect (12) and emotional abuse (23). However, Lev-Wiesel and Zohar (2014) found that depression was associated with self-harm, regardless of CSA history (27). Steine et al. (2020; study 40) found that anxiety, depressive and eating disorder symptoms all significantly predicted persistent NSSI. However, insomnia, nightmare distress and relational problems did not (40). The variation in populations, assessment tools

and data analysis methods may have contributed to the differing results. However, the consensus was that they do offer some explanation in terms of the ACE-NSSI relationship.

Impulsivity and Sense of Control

Two studies investigated the impact of impulsivity, with both finding that facets of impulsivity mediated the ACE-NSSI relationship (2; 3). Arens et al. (2012; 2) investigated the mediational role of urgency (a facet of impulsivity) in US undergraduate students and found that CM was a significant predictor of DSH ($B = 0.57, p < .05$), however, after controlling for urgency, CM no longer significantly predicted DSH. This indicated that urgency fully mediated the relationship between CM and DSH. The indirect effect between CM and DSH via urgency was significant ($b = .16, 95\% \text{ CI } [.04, .40]$). Whereas other facets of impulsivity such as perseverance, premeditation and sensation seeking were not significant mediators of the CM and DSH relationship (2). Similarly, Arens et al. (2014; 3) found that there were significant indirect effects of CM on the frequency of self-harm through negative urgency ($b = 0.25, p = .038$) and the indirect effect of CM on the frequency of self-harm through a sense of control was significant ($b = -1.87, p = .001$). As a result, both studies suggested that the urgency facet of impulsivity played a noteworthy role in the CM and self-harm relationship in a population of US undergraduate students.

Psychological Resilience

Four studies examined the impact of psychological resilience on NSSI, in the child and adolescent population in China. He and Xiang (2022; 22) examined school children and adolescents (8-19 years) and found that resilience ($95\% \text{ CI } [0.004, 0.042]$) and loneliness ($95\% \text{ CI } [0.016, 0.069]$) both mediated the CM-NSSI relationship. However, this was only in relation to middle and high school populations as the direct effects of resilience and loneliness on NSSI for primary school students were non-significant. Tian et al. (2021; 46)

found that childhood abuse partially mediated the CM-NSSI relationship (standardized indirect association = $-0.56 \times -0.27 = 0.15$), accounting for 33.46% of the total association (total association = $-0.56 \times -0.27 + 0.30 = 0.45$). Furthermore, moderation analysis highlighted that the interaction between resilience and childhood trauma had a small but significant association with NSSI ($B = -0.10$, CI 95% $[-0.13, -0.07]$), which suggested that resilience functioned as a moderator between childhood trauma and NSSI. Therefore, He and Xiang (2002; 22) found that resilience and loneliness mediated the ACE-NSSI in middle and high school students, and Tian et al. (2021; 46) found that resilience also acted as a moderator between the two.

Tian et al. (2020; 45) recruited Chinese adolescent students to investigate the role of resilience in the ACE-DSH relation and demonstrated that resilience was generally inversely associated with DSH for all CM types, with adjusted odds ratios ranging from 0.29 (95% CI $[0.19-0.44]$) to 0.46 (95% CI $[0.26-0.81]$). Li et al. (2022; 28), assessed the role of psychological resilience in mediating the CT-NSSI relationship and results demonstrated that psychological resilience partially mediated the relationship (moderate self-harm: $\beta = 0.013$, 95% CI $[0.007, 0.020]$, and high self-harm: $\beta = 0.044$, 95% CI $[0.033, 0.055]$).

Therefore, two studies found that resilience (22; 26) mediated the ACE-NSSI in school students, and Tian et al. (2021; 46) found that resilience acted as a moderator between the two. Tian et al. (2020; 45) found that resilience was in general inversely associated with DSH for all CM types. Therefore, resilience appeared to be an important factor in explaining the ACE-NSSI relationship.

Emotional Intensity, Expressivity and Coping

Two studies examined the role of emotional intensity, expressivity and coping in the ACE-NSSI relationship (18; 44). Thomassin et al. (2016; 44) found that poor emotion

expressivity (indirect effect = 0.114, $p = .027$) but not emotion coping (indirect effect = 0.054, $p = .235$) mediated the relationship between childhood experiences of emotional abuse and NSSI in a population of American adolescent psychiatric inpatients. Gratz (2006; 18) performed regression analyses using data obtained from female university students and results suggested that CM and low positive affect intensity/reactivity reliably distinguished the women with a history of DSH from women without a history of DSH, as do the 3-way interactions of childhood abuse, increased in-expressivity, and increased rates of affect intensity/reactivity. Therefore, poor emotion expressivity and low positive affect intensity/reactivity contributed to the ACE-NSSI relationship.

Other Interpersonal Factors

Seven papers examined varying interpersonal factors (i.e., relationships and communication with others) in terms of their relevance to the ACE-NSSI relationship. Interpersonal factors included attachment styles (6), explanatory styles (10), intimate partner violence (IPV) victimisation (11), social support (31; 50), sexuality (29) and romantic attachments (39).

Bolen et al. (2013; 6) recruited CSA survivors and found that when compared to participants who did not self-harm ($\bar{x} = .34$), those who did self-harm had a less secure attachment style ($\bar{x} = -.51$, $F = 15.982$, $p < .001$). Buser and Hackney (2012; 10) investigated the relationship between explanatory style and NSSI in American university students, and a pessimistic explanatory style was found to be a partial mediator. While the relationship between emotional abuse and self-harm remained significant in the third regression analysis ($B = .06$, $b = .24$, $p < .001$), this relation was reduced when compared to the second regression analysis ($B = .07$; $b = .28$, $p < .001$). A Sobel Test confirmed a significant mediation effect ($z = 3.97$, $p < .001$).

Caron et al. (2017; 11) examined the role of intimate partner violence (IPV) victimisation in the CM-NSSI relationship in psychology students at a Canadian university. The indirect effect of IPV victimisation on the link between CM and self-harm behaviours was significant ($b = .27, p < .01$). Although CM remained a significant predictor of self-harm after controlling for IPV, the strength of the relationship was significantly decreased, indicating that IPV victimisation was a partial mediator.

Wan et al. (2019; 50) recruited Chinese adolescents from junior and senior schools and found higher rates of self-harm, with higher rates of ACEs and lower levels of social support. When ACEs and social support were entered in the model together, there were significant effects of ACEs and level of social support on self-harm (all $p < .001$, see Table 3). There were no interaction effects between ACEs and social support on self-harm (total sample, $p = .062$; boys, $p = .521$; girls, $p = .115$), which may have been partially attributable to the confounding effect of psychological symptoms. These have been found to be significantly related to ACEs, social support, and self-harm in previous research conducted in China (Tang et al., 2018).

In a similar study (31), the researchers assessed the role of perceived social support in the relationship between cumulative childhood maltreatment (CCM) and NSSI, recruiting a sample of adults studying at an Italian university. Mediation analysis showed that CMM negatively predicted perceived support from family ($\beta = -0.70, p < .001$) and to a smaller extent, perceived support from friends ($\beta = -0.17, p < .001$). Frequency of self-harm was predicted only by perceived family support ($\beta = -0.36, p < .001$) and not by CCM directly or via perceived friend support. In terms of indirect relations, analyses demonstrated that CCM was significantly and positively linked to frequency of self-harm through lower rates of perceived family support ($\beta = 0.25, p < .001$).

Li et al. (2019; 29) recruited high school students in China and investigated sexuality in the ACE-NSSI relationship. Students who identified as lesbian, gay, or bisexual (LGB) had an increased probability of engaging in self-harm, when compared to heterosexual students. The study found that odds for self-harm were increased among participants who have a history of ACEs and identified as LGB (AOR = 2.821, 95% CI [1.51–5.29]).

Stagaki et al. (2022; 39) investigated the roles of romantic attachment and mentalisation in the CM-NSSI relationship. They recruited participants from a variety of outpatient and community sources ($n = 907$, aged 16- 65 years old), and found that romantic attachment partially mediated the CM-NSSI relationship (indirect effect = 0.23, $p < .001$, 95% CI [0.12–0.34], direct effect = 0.22, $p < .001$, 95% CI [0.13–0.31]), and that mentalisation was a partial mediator (indirect effect = 0.08, $p = .002$, 95% CI [0.03–0.14]; direct effect = 0.22, $p < 0.001$ [95% CI 0.13–0.31]). Therefore, both mentalisation and romantic attachment styles accounted for some of the CM-NSSI relationship, however, the CM-NSSI remained significant, even without such factors being considered.

In terms of interpersonal factors, the studies found that those who were less securely attached were more likely to engage in NSSI (6). Pessimistic explanatory styles (10), IPV victimisation (11) and romantic attachment and mentalisation (39) acted as partial ACE-NSSI mediators. Li et al. (2019; 29) found that the likelihood of engaging in NSSI was higher among students with ACEs and who identified as LGB. Wan et al. (2019; 50) found that lower levels of perceived support from family members predicted higher rates of NSSI (31).

Other Intrapersonal Factors

Eleven articles examined intrapersonal variables associated with the CM-NSSI relationship and found differing effects. These included suicide-related concerns (8), identity confusion (20), potency (27), self-blame (41), negative coping (49), self-esteem (37; 51),

shame and self-compassion (16), self-hatred (32), psychological health state (26) and genetics (15).

Brausch and Holaday (2015; 8) examined the role of suicide-related concerns in participants recruited from psychology classes at an American university. Bootstrapping analyses demonstrated significant direct effects between physical abuse and NSSI ($B = .322$, $p = .02$) and between physical abuse and suicidality ($B = -.059$, $p < .001$). The pathway between physical abuse and NSSI became non-significant after controlling for suicidality ($B = .213$, $p = .11$). Sobel tests confirmed the indirect effect was significant ($Z = 2.42$, $p = .02$, $CI [.012-.0251]$). These findings indicated that suicidality mediated the association between physical abuse and NSSI, meaning that suicidality explained this relationship.

Gu et al. (2020; 20) examined a similar population and found that identity confusion partially mediated the relationship between emotional abuse and self-harm (indirect effect = 0.07 , $SE = 0.01$, $95\% CI [0.05, 0.10]$). Simple slopes analyses showed that the indirect effect of identity confusion was more notable among participants with elevated rates of rumination ($b = 0.08$, $SE = 0.02$, $95\% CI [0.05, 0.12]$), than for participants who experienced lower rates of rumination ($b = 0.05$, $SE = 0.01$, $95\% CI [0.03, 0.08]$). This indicated that the mediation effects of identity confusion were more significant for adolescents who tend to ruminate more.

Lev-Wiesel and Zohar (2014; 27) examined potency, which is defined as an individual's continued confidence in their own capabilities and confidence in a social environment (Ben-Sira, 1985). They found a significant relationship between potency and self-injury among girls with a history of CSA ($F(1, 89) = 5.95$, $p < .05$). The relationship was non-significant for girls who did not experience CSA, which indicated that potency could have accounted for self-harming behaviours in those with a history of CSA.

Swannell et al. (2012; 41) investigated the effect of self-blame on the ACE-NSSI relationship and found that it significantly reduced the direct effect of any CM on NSSI in females (OR reduction of 14.6%, $p < .000$) and males (OR reduction 7.4%, $p < .000$). Therefore, self-blame partially explained the ACE-NSSI relationship. Wan et al. (2020; 49) examined coping styles in middle school populations and found that participants with increased rates of negative coping (NC) may have been at an increased risk of engaging in self-harm, regardless of gender and history of ACEs, but generally, girls were more likely than boys to self-harm when subjected to the highest level of NC. The significant association between low positive coping (PC) and self-harm was only in girls subjected to several ACEs.

Wan et al. (2020; 51) examined a school population from China and found the relationship between CM and NSSI was mediated by self-esteem, regardless of gender and only child status (Table 3). Rong et al. (2022; 37) recruited prisoners from juvenile and women's prisons ($n = 1040$) and examined the role of self-esteem as a potential mediator in the CM-NSSI relationship. They carried out mediation analyses for the total sample: males over 24 years old, males under 24, females over 24 years old and females under 24. Results showed that self-esteem was a mediator in all mediation models (Table 3).

Garbutt (2019; 16) examined the role of shame and self-compassion in the ACE to self-harm pathway. The study assessed four ways in which individuals may respond to shame: withdrawal, avoidance, by attacking self, or by attacking another (Elison et al., 2006). They recruited men and women from English prisons and the community (combined total 49% male; 33.3% from prison population). They demonstrated that the indirect pathway from childhood abuse to NSSI was inflated via *shame attack self* ($\beta .033$; CI 95% [.024 to .043]; $p = .010$) and *shame withdrawal* ($\beta .011$; CI 95% [.003 to .020]; $p = .005$). In the male sample, *shame attack self* ($\beta .314$; CI 95% [.233 to .383]; $p = .005$) had a direct pathway to NSSI and the indirect pathway from childhood abuse to NSSI was inflated via *shame attack self* (β

.033; CI 95% [.024 to .043]; $p = .003$). For females, the indirect path from childhood abuse to NSSI was inflated via *shame attack self* ($\beta .028$; CI 95% [.020 to .040]; $p = .002$) and inflated via *self-compassion* ($\beta .012$; CI 95% [.006 to .020]; $p = .003$). Therefore, shame and self-compassion played a mediating role in the samples, providing some explanation for how ACEs led to engagement in NSSI in individuals with higher levels of shame and lower rates of self-compassion.

Nilsson et al. (2022; 32), investigated the role of self-hatred in the relationship between CM and NSSI, examining participants from outpatient and community settings. Results demonstrated a direct effect of emotional abuse on NSSI with a log odds coefficient of 0.157 ($p = .01$) and an indirect significant mediation effect of self-hatred (with a log odds coefficient of 0.117, CI [0.058–0.217]). Overall, the mediation effect of self-hatred on the CM-NSSI relationship was 43%. Another study investigated the impact of self-compassion on the relationship between childhood maltreatment and self-harm, in a sample of adolescents recruited from schools in Hong Kong. They found that for adolescents with low levels of self-compassion, the association between childhood maltreatment and self-harm was significant ($b_{\text{simple}} = 0.11$, $t = 6.49$, $p < .001$). However, for those with higher levels of self-compassion, the CM-NSSI relationship was not significant ($b_{\text{simple}} = 0.001$, $t = 0.05$, $p = .96$). Therefore, the higher the levels of self-compassion, the weaker the relationship was between childhood maltreatment and self-harm.

Huang et al. (2022; 26) examined the impact of one's psychological health state (PSH) on the childhood trauma and NSSI relationship in Chinese adolescents. Mediation analyses suggested that childhood trauma positively predicted NSSI both directly and indirectly through PSH. There were direct effects of childhood trauma ($\beta = 0.11$, $p < .001$) and PSH ($\beta = 0.47$, $p < .001$) on NSSI. Indirect effects were 0.204 ($p < .001$), and the total effects were 0.317 ($p < .001$). Therefore, PSH was found to have partially mediated the

childhood trauma and NSSI relationship, meaning that PSH partially explained the CT-NSSI relationship, but was not accountable for its entirety.

Rong et al. (2022; 37) recruited prisoners from juvenile and women's prisons (N = 1040) and examined the role of self-esteem in the CM-NSSI relationship. They carried out mediation analyses for the total sample: males over 24 years old, males under 24, females over 24 years old and females under 24. Results showed that self-esteem was a mediator in all mediation models (Table 3).

Lastly, Gao et al. (2021; 15) investigated the moderating role of the Monoamine Oxidase A (MAOA) Gene and the Catechol-O-Methyltransferase (COMT) Gene in the CM-NSSI relationship in male adolescents. The results showed that the MAOA gene ($\beta = 0.35$, $t = 3.00$, $p < .01$) and COMT gene ($\beta = 0.42$, $t = 3.71$, $p < .01$) both played moderating roles in the relationship between CM and NSSI in this population and proposed the polygenic substructures of NSSI.

Results demonstrated that the ACE-NSSI relationship can be at least partially attributed to suicide-related concerns (8), identity confusion (20), potency (27), self-blame (41), PSH (26), self-esteem (37, 51), shame (16), self-compassion (16, 32) and genetics (MAOA & COMT) (15). This highlighted the complex and multifaceted nature of the ACE-NSSI relationship, and the variables which have been found to account for this.

Strengths and Limitations of the Review

Reviewer Bias

The current review was the first to examine risk factors for NSSI in a high-risk population such as those with a history of ACEs. The review synthesised current research within the ACE-NSSI relationship and provided a summary of implications for clinical practice and future research (see below).

The review only included peer-reviewed papers in the English language so this was considered a selection bias. Furthermore, articles were extracted only by the reviewer which may have led to an unintended selection bias. However, the reviewer implemented an inclusion/exclusion criterion and used a stringent data extraction method to reduce the effects of biases. Only research papers with a quality assessment score of 60% or above were included in the final review, to enhance the reliability of the results gained. During the quality assessment stage, 10% of the articles were dual coded to reduce the risk of bias during decisions made regarding quality.

Methodological Issues

One of the main limitations across the included studies was in relation to the sampling methods used and selection biases that occurred as a result. The samples used were not always representative of the target population, in the sense that they may not have accurately represented the characteristics of the population they had aimed to examine due to non-random sampling methods. Therefore, results gained were limited in terms of generalisability. Non-random sampling methods were used for 74% of the studies included in the review and sample biases would be inherently increased for these studies as randomisation methods were not employed to help mitigate the effects of biases such as self-selection and non-responder biases (Downes et al., 2016). Even when using randomisation, the studies that recruited adolescents from schools inevitably excluded those who were absent on the day of the study, with higher levels of ACE, NSSI and potential mediators likely being more prevalent in those who were absent from school (49; 50; 51). Overall, studies failed to address the non-response bias and few studies acknowledged it as an issue.

Most studies used self-report measures, meaning results were heavily reliant on participants recalling events accurately. This problem became evident in one study (27),

given that participants were interviewed by their assigned social workers, which may have led to them giving socially desirable responses. Using structured psychometric measures within most studies was a major strength given the standardised and reliable nature of them. Most studies used valid and reliable measures to assess the investigated constructs, although the wide range of measures used to assess ACEs, NSSI and additional variables made study comparisons difficult. Some research papers did use non-standardised measures within their research which raised questions regarding the reliability and validity of the methods used. However, it was reassuring that some authors had measured and reported the reliability of the questionnaires used and that they were all $\alpha > 0.7$ (22; 49; 50; 51; 52). Lastly, papers used different time frames to assess NSSI, which also made between study comparisons difficult. For instance, although only assessing NSSI up to 6 months prior to the study (11; 47) reduced retrospective bias, individuals who self-harmed outside of that timeframe would have been excluded from the study or categorised as non-self-harmers, which could have affected the overall results.

Another limitation of this review was that all studies were cross-sectional in nature, making it impossible to establish a causal relationship between variables examined. The assumption that ACEs occurred before the onset of NSSI is logical, taking into consideration theoretical models of NSSI (Serafini et al., 2017). However, it becomes more difficult to establish the temporal ordering of constructs when additional and mediational factors are added into the ACEs-NSSI relationship. With some mediating variables it seems more reasonable to presume their development following ACEs and prior to NSSI (i.e., PTSS), whereas for others it is not so clear (e.g., depressive symptoms). Although it was not possible to reflect on all risk factors included in the review, it seemed logical to consider the temporal positioning of PTSS and dissociation within the ACE-NSSI relation given these factors have the most evidence to substantiate their potential risk factor statuses. Theoretical literature has

typically demonstrated that ACEs precede PTSS and that PTSS generally precedes NSSI (Linehan, 1993), and given that dissociation is considered a trauma related symptom, this construct should also be considered within the same chronology of events. However, prospective longitudinal research is needed to address this limitation and ascertain whether the mediational properties of PTSS and dissociation within the ACE-NSSI relationship would remain.

Conclusion

The aim of the current review was to identify risk factors for NSSI among those with a history of ACEs. This included identifying variables which explain the ACE-NSSI relationship (i.e., factors that mediated the ACE-NSSI relationship). Seven studies examined the role of PTSS in the ACE-NSSI relationship and found that PTSS played a significant role in this relationship. Statistically higher levels of PTSS were found in those with a history of CSA who engaged in NSSI (6), as well as general PTSS (1; 38; 52) and specific PTSS subtypes (24; 53), compared to those without a history of ACEs, thus, statistically mediating the ACE-NSSI relationship. Therefore, PTSS could be considered a risk factor for NSSI in individuals with ACEs.

Most findings suggested dissociative symptoms play a role in the NSSI and ACEs relationship. Although, some studies found a stronger association (6; 27; 14; 17) than others (5; 12; 24; 30; 41; 42). Howard et al. (2017; 24) found dissociation did not mediate the NSSI-ACE relationship, however, they assessed CM as a general construct and had a lower quality score of 65%. One study found that dissociation was a partial mediator when paired with ED and only one study found that dissociation did not mediate the relationship at all (24). Overall, it appeared that the presence of dissociative symptoms increases the risk of NSSI in

those with ACEs and as such, dissociation could be considered a risk factor for this population.

Ten studies investigated the role of ED in the ACE- NSSI relationship, with three papers finding that ED did not play an independent mediating role (12; 24; 36) and seven papers evidencing that ED had some form of a mediating role in the ACE-NSSI relationship (1; 25; 33; 34; 43; 47; 54). Given the populations studied where a mediating effect of ED was found, ED could be considered a risk factor for NSSI in the clinical adolescent population, as well as the general adult population. Two of the three papers which did not find a mediating effect of ED used forensic samples, therefore, further research is needed within the forensic population.

Lastly, although there is not enough research to consider a lack of resilience a risk factor, four studies from the review examined the role of resilience and it appeared to be an important factor in the ACE-NSSI relationship. Two studies found that resilience (22; 26) mediated the ACE-NSSI relationship in middle and high school students, and Tian et al. (2021; 46) found that resilience also acted as a moderator between the two. Tian et al. (2020; 45) found that resilience was in general inversely associated with DSH for all CM types. Therefore, it was concluded that resilience appears to be an important factor in explaining the ACE-NSSI relationship, and future research is needed to see if it could serve as a protective factor.

Although a variety of intra and interpersonal factors were investigated, which could form a basis for future research into risk factors for NSSI, this author argues that they should not be considered risk factors at present. This is due to the remaining variables being under researched and/or there being a lack of statistical significance reported in existing research to

support such a claim. Given that all studies used in the review were of a cross sectional design, any conclusions drawn from the findings were made with caution.

Implications for Practice

The current review highlighted the importance of viewing those with a history of ACEs as being at high-risk of carrying out acts of NSSI. The findings showed that PTSD, ED and dissociation are potential risk factors for NSSI in those with ACEs. Therefore, it is concluded that those with a history of ACEs are more likely to engage in NSSI if they are also experiencing PTSD symptoms, dissociation, and ED difficulties. Thus, when working with individuals with a history of ACEs and assessing for NSSI risk, the aforementioned factors should be screened for and prioritised in treatment.

Given that PTSD and dissociation may arise prior to engaging in NSSI, professionals working with the self-harming population should receive training to increase an awareness and understanding of trauma informed working (Office for Health Improvement & Disparities, 2022). Trauma-informed care is an approach utilised when offering care and treatment to individuals and is based on the belief that experiencing traumatic events can affect the development of a person's physiological, psychological, emotional and relational processes (Office for Health Improvement & Disparities, 2022). This model of care is particularly relevant when working with a population of individuals with a history of ACEs, who may be experiencing trauma related symptoms, and who are at risk of engaging in self-harm.

The findings also have implications for those treating individuals who engage in NSSI with a history of ACEs. General treatment approaches to NSSI such as Dialectical Behaviour Therapy (Linehan, 1993) alone may not be as effective in the prevention of NSSI, until the PTSS and dissociation are treated. This suggestion is supported by the best practice guidance on treating Complex PTSD (UKPTS, 2016) which advises that individuals engage in

intervention trauma symptom management (i.e., grounding techniques for re-experiencing symptoms and dissociation) prior to engaging in skills building interventions such as DBT. Moreover, clinicians and research have recognised that those with a history of trauma who require treatment for difficulties such as NSSI, may require adapted DBT interventions which target both NSSI and PTSD symptoms simultaneously such as DBT for PTSD (DBT-PTSD). This is an intervention designed for individuals with PTSD and comorbid difficulties with emotion dysregulation and NSSI and has shown to be effective in treating these co-occurring areas (Steil et al., 2018).

The treatment needs of those who engage in NSSI with a history of ACEs may be different to those without a history of ACEs and therefore, population specific treatment/interventions may need to be developed for this high-risk population. Reducing PTSD related symptoms may lead to a reduction in NSSI behaviours as the urges to self-regulate emotions or interrupt dissociative episodes through NSSI may no longer be necessary. This may be more effective than treating the NSSI behaviours directly.

Lastly, resilience was found to play an important role in the ACE-NSSI relationship, with decreased resilience appearing to be linked to increased NSSI in the ACEs population. It is noted that further research is needed to fully explore the concept of a lack of resilience serving as a risk factor, or alternatively, resilience serving as a protective factor in the ACE-NSSI relationship. That said, clinicians working with and treating individuals who self-harm with a history of ACEs, should consider assessing and increasing levels of psychological resilience.

Recommendations for Future Research

Non-cross-sectional research is needed to establish predictive factors for NSSI in those with ACEs; ideally, longitudinal studies. In doing so, causality could be inferred, as well as the temporal ordering of constructs being established. Research on the ACE-NSSI

relationship could be conducted using assessment methods other than self-report measures to address limitations inherent in self-report measures. Most research reviewed was derived from Western countries, which highlighted the need for similar research to be performed more widely, given that NSSI is a global issue. Research conducted in Western countries could include more ethnically diverse groups of individuals, given that only one study in this review examined a predominantly African American sample (7). Furthermore, future research should use randomised sampling methods to reduce sampling and responder bias; thus, increasing the overall generalisability of results found. Lastly, it was identified that there was a need for qualitative research to explore the lived experiences of individuals who have a history of ACEs and engage in self-harm. This is crucial given that in order to develop effective and person-centred interventions for those who self-harm with a history of ACEs, we need to better understand the phenomenon and lived experiences from their perspective. This gap in the literature was therefore addressed in Chapter 3.

Chapter 3

Exploring the Lived Experiences of Hospitalised Women with a History of Childhood

Abuse, who Engage in Self-harming Behaviour.

Abstract

Research has established a link between ACEs and a risk of deliberate self-harm (DSH) (Van Der Kolk et al., 1991; Yates et al., 2008). To date, there has been no research examining the lived experiences of hospitalised women who engage in self-harm and who have a history of childhood abuse, despite them being considered a high-risk and vulnerable population. Therefore, the aim of this study was to gain an in-depth understanding of how women receiving treatment in an inpatient setting, with a history of childhood abuse, make sense of their experiences of self-harm. The research particularly focused on what factors related to their engagement in DSH. Semi-structured interviews were carried out with six psychiatric inpatients at a hospital in the North of England, with a history of childhood abuse. The research design was qualitative in nature and adopted an Interpretative Phenomenological Analysis (IPA) approach. Three group experiential statements were identified: *Journey of self-harm*; *Reasons why I self-harm*, and *Relationships and self-harm*. Participants spoke about why they self-harm (e.g., to regulate emotions or to “feel something”) and their experiences of factors which made them less likely to self-harm (e.g., positive personal support). Findings were discussed in relation to the notion that self-harm is considered a long-term and complex issue for these women. Lastly, clinical implications of the research were made along with suggestions for future research.

Introduction

In the UK, the term deliberate self-harm (DSH) is defined as non-fatal, intentional acts of self-injury, regardless of whether it is accompanied by suicidal or non-suicidal intent (RCPsych, 2020; NICE, 2013). See chapter 1 for further details around defining and understanding the concept of DSH.

Overall, population level research has reported slightly higher levels of childhood adversity and abuse amongst adult females, with one review from the UK finding that females experienced significantly higher rates of sexual and physical abuse (Vaswani, 2018). Out of all forms of abuse, Childhood Sexual Abuse (CSA) has been frequently found to have the most significant relationship with both the chronicity and seriousness of DSH, as well as childhood physical abuse being a significant risk for future DSH (Low et al., 2000; Swannell et al., 2012; Troya et al., 2021). Therefore, the female population should be considered at higher risk when it comes to psychological health problems (such as DSH), in relation to their increased childhood adversities, particularly those who have survived childhood abuse, which was violent and sexual in nature. It is of note that males have been found less likely to report childhood abuse (particularly sexual abuse), due to cultural and gender norms regarding masculinity and not wanting to appear vulnerable (Levenson et al., 2016).

Childhood Sexual Abuse, Mental Health Issues and Hospitalisation

Research has found that CSA is more likely to lead to psychological difficulties associated with post-traumatic stress disorder (PTSD) in women, and females are diagnosed with this disorder nearly twice as often as males (Hu et al., 2017). The prevalence of PTSD globally, is about 10 to 12% in women (Olf, 2017), with females being more likely to endure traumatic events such as CSA, sexual assaults and intimate partner violence (Tolin & Foa, 2006). This suggests that the forms of trauma which females endure have a significant

relational component to them, which may contribute to elevated levels of PTSD (McLean et al., 2011).

When studying a clinical sample of women who have survived CSA, it was found that they were more likely to have difficulties associated with Emotionally Unstable Personality Disorder (EUPD) (Abrams & Stefan, 2012). Research has shown that those with a history of CSA, are more likely to go on to develop an insecure and/or disorganised attachment style, which in turn can lead to increased problems associated with depression and experiencing overwhelming feelings of fear and shame (Ensink et al., 2019). Two of the main diagnostic criteria for EUPD are being impulsive and engaging in self-destructive behaviour (such as DSH) and having interpersonal difficulties which can lead to significant problems in relationships (APA, 2013). There is also a well-established link between CSA and a negative and distorted self-image in CSA survivors, which is perpetuated by feelings of self-blame and self-disgust (Ensink et al., 2019). As such, perhaps female survivors of CSA engage in DSH as a method of regulating the intense and unpleasant feelings they are experiencing (Lundh et al., 2011).

Cleare et al. (2018) found that in the UK, females with a history of ACEs were considered at higher risk of engaging in repeated self-harm. This indicates that there is a proportion of women in the UK with a history of childhood abuse, who engage in repeated and significant self-harm, who are likely suffering from complex trauma related symptoms and personality difficulties because of their adverse experiences. For some of these women, it will be a legal requirement that they be admitted to psychiatric hospitals to receive psychological treatment, due to the severity of their mental health conditions and the risk they pose to themselves and others (MHA, 1983/2007). Swinton and colleagues (1998) found a high prevalence of self-harm within a high secure hospital environment, with 70% of female inpatients engaging in some form of DSH in their lifetime. Similarly, Vollm and Dolan (2009)

found elevated levels of DSH in female prisoners, with them also finding that incarcerated women with no prior history of DSH will often go on to develop issues with DSH.

Furthermore, a study conducted in the UK, reported that five to six percent of male and 20 to 24% of female patients engaged in self-harm every year (Hawton et al., 2014). In a female medium secure setting in the UK, the prevalence of DSH amongst inpatients was 54% (Holden et al., 2022). Such statistics highlight the increased risk of DSH in women with complex mental health needs who require treatment in secure hospital settings.

In addition to increased rates of DSH in female secure inpatients, a review of 46 studies worldwide examining female inpatients and outpatients, reported that 48% of inpatients reported being survivors of CSA (Read et al., 2007). A study in America found that female psychiatric inpatients with a history of childhood abuse were nearly three times more likely to experience sexual violence as an adult, compared to women psychiatric inpatients without a history of abuse (Cloitre, 1996). This highlights the vulnerable nature of this client group, in terms of risk of future victimisation and increased risk of associated mental health difficulties such as trauma related disorders and DSH. In response to an increasing awareness of the prevalence of trauma, there has been a growing body of literature highlighting the importance of the implementation of trauma informed care (TIC) (Scottish Government, 2012).

Hospitals that implement TIC are aware that their services have the potential to retraumatise service users with a history of trauma through their well-established use of restrictive practices, for instance, the use of physical restraint or seclusion facilities. Even for individuals without a history of trauma, being admitted to psychiatric units can be equally as traumatic due to their loss of freedom, experiencing debilitating symptoms of mental illness and being separated from family and friends (Hodas, 2006). In the UK, there are six

established principles of TIC as defined by the Office for Health Improvement and Disparities (2022). See Table 6 below.

Table 6

Principles of TIC

Principle	Definition
Safety	The safety of both service users and staff are emphasised. This includes physical and psychological safety.
Trustworthiness	The service implements candid and clear policies and protocols, with the aim of creating a sense of trust between service users, staff members and the community it resides in.
Choice	Service users are encouraged to make decisions regarding their care and be actively involved in their recovery, be provided choices and options where possible, and to acknowledge that historically, trauma has occurred in response to a lack of control over their lives.
Collaboration	The service recognises and promotes the importance of service users and staff working together to propel recovery and conquer challenges.
Empowerment	There is an emphasis on recognising and minimising the power imbalance between staff and service users, by the promotion of service users and staff having a voice which will be listened to by the wider organisation.
Cultural consideration	To disregard cultural and social stereotypes, take into account the cultural needs of the individual and provide gender responsive care.

The benefits of TIC have been well evidenced within academic literature and have included an observed reduction in trauma related and other mental health symptoms

(Muskett, 2014), a reduction in vicarious trauma, a reduction in negative experiences, an increase in staff morale and the development of staffs' clinical skills (Hopper et al., 2010). Given that hospitalised women who engage in self-harm are significantly more likely to have experienced abuse prior to being admitted to hospital, the principles of TIC are pivotal for this population.

Personal Support to Reduce DSH

Although ACEs have an established relationship with the onset of DSH, it should be noted that not all individuals with a history of childhood abuse go on to engage in DSH. Similarly, some individuals who previously engaged in DSH may go on to reduce their use of DSH and even stop engaging in such maladaptive coping strategies. Hence, it is of paramount importance that factors which could reduce the likelihood of engaging in DSH are explored.

Generally, the role of social support has been demonstrated to mitigate the harmful consequences of negative life events in terms of mental well-being (Li et al., 2021; Uchino et al., 1999). Therefore, it is understandable that social support has been found to be a protective factor for individuals engaging in DSH. For example, Rotolone and Martin (2012) compared a group of individuals who were continuing to self-harm with a group of individuals who had ceased self-harm, to evaluate personal and social characteristics between these groups. In terms of social factors, they found that those who had stopped self-harming had higher levels of perceived social support, family support and feelings of belonging to a social group, when compared to current self-harmers. Supporting this further, a mixed methods study found that university students with a history of self-harm reported that they were able to stop engaging in DSH due to professional help and social support received (Gelinas & Wright, 2013). In their study, professional and personal support was regarded as beneficial to reducing a risk of

DSH and highlighted the significance of having someone to talk to as well as the vital role family and friends play in this process (Gelinas & Wright, 2013).

The Current Study

Previous research exploring the relationship between childhood abuse and DSH has frequently been quantitative in nature and failed to examine the fundamental details of the relationship. Although research of a quantitative nature has informed evidence-based clinical practice in terms of treating self-harm, such research has been unable to shed light on service users' subjective experiences in relation to DSH (Biggerstaff & Thompson, 2008). Therefore, this research study endeavoured to explore the experiences of self-harm in hospitalised women with a history of childhood abuse, as well as explore factors that may impact on their continued engagement in DSH. It is also important to gain an in-depth understanding of the experiences of detained women with a history of childhood abuse, who engage in DSH, in order to augment previously researched factors that have been shown to mediate this relationship from existing quantitative research. Psychiatric inpatient women with a history of childhood abuse are at significant risk of repeated self-harm, and therefore, more insight was needed into their unique experiences. A qualitative approach to this study was chosen as the research aimed to explore the complex phenomenon of self-harm from a psychiatric inpatient service user perspective. Although all participants had a history of childhood abuse, the purpose of the study was not to explore their childhood trauma, but rather to gain an understanding of the experiences of DSH within this specific population. The research questions were as follows:

1. How do hospitalised women with a history of childhood abuse make sense of their experiences of self-harm?

2. From their perspective, what factors affect their engagement in self-harming behaviours, particularly what has caused them to self-harm on some occasions but not others?

Methodology

Design

The study aimed to gain an in-depth insight into the lived experiences of hospitalised women with a history of childhood abuse, who engage in self-harm. Therefore, a qualitative approach was deemed most appropriate. Although there are different approaches to qualitative research, which hold differing epistemological perspectives, Interpretative Phenomenological Analysis (IPA) was selected as most appropriate due to the aim of gaining an in-depth understanding of the participants' lived experiences (Smith & Osborn, 2003). Reviews have shown that IPA has a robust research approach (Smith et al., 2009) and the use of IPA is recommended when examining complex and emotionally loaded topics (Smith & Osborn, 2015).

IPA is heavily informed by hermeneutics, which is the theory of interpretation, and holds the view that all human beings endeavour to make sense of their experiences. IPA uses a double hermeneutic process, as the analysis involves the researcher attempting to make sense of the participant attempting to make sense of their experiences (Smith et al., 2022). IPA is concerned with the comprehensive inspection of accounts given by participants and is participant orientated (Alase, 2017). It is considered idiographic, in the sense that the research wants to gain an understanding of what the experience of a particular phenomenon is like for a specific person, and how this person is making sense of said experience. As such, IPA studies generally examine a small number of participants, to unveil some part of the

experience of all research participants. Typically, data collection occurs in the form of individual interviews with participants, using semi-structured interviews to promote the participant's ability to have some control over the direction of what information is disclosed (Smith et al., 2022). IPA allows for several individuals who experience an alike phenomenon to give their accounts exclusive of any distortions or scrutiny from the researcher, with the researcher merely identifying any similarities and differences between participants during the data analysis stage (Alase, 2017).

Participants

It is well documented that “there is no right answer to the question of . . . sample size” (Smith et al., 2009, p. 56) when it comes to IPA research. However, Smith et al. (2022) stated that for professional doctoral students between six and ten interviews seem an appropriate amount of data. To promote homogeneity of the sample and decrease the likelihood of oversaturated data, a sample size of six participants was selected against predetermined inclusion and exclusion criteria. All participants were adult women who were detained under the MHA (1983/ 2007). The participants were aged between 18 to 60 years old and had a history of childhood abuse. This included physical, psychological, and sexual abuse as well as significant neglect. Participants also must have engaged in repeated self-harm (defined as three times or more) at some point in their lifetime. All participants were past or present attendees of a Dialectical Behaviour Therapy (DBT) group. This meant that they were receiving or had received treatment regarding their self-harming behaviour and had demonstrated resilience in terms of talking about their difficulties and factors that perpetuate their risk. Lastly, to participate in this research, participants were only included if they were deemed to have capacity to give informed consent and demonstrate an understanding of the research being undertaken.

Individuals were excluded from partaking in the research if they had active psychosis or a diagnosis of a learning disability, due to their reduced capacity to give informed consent. If an individual's responsible clinician (RC) deemed the participant to lack capacity at the time of the study or believed that it would be inappropriate for them to participate in research for reasons relating to their mental health condition and/or risk, they were excluded from the research. Finally, any service users undergoing individual therapy with the researcher at the time of the study were excluded due to a possible conflict of interest.

Table 7

Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
• Detained in an inpatient setting under a section of the MHA 1983 (amended 2007). • Aged between 18 – 60 years old (as per hospital criteria for admission). • Documented history of any of the following forms of childhood abuse: physical, sexual and psychological abuse, as well as significant neglect. • Engaged in DSH on three or more occasions in their lifetime. • Past or present attendee of a DBT group. • Demonstrated capacity to give informed consent to partake in the research.	• Acute episode of a psychotic illness. • Formal diagnosis of a learning disability. • Undergoing therapy with the researcher at the time of the study. • Deemed to lack capacity to give informed consent to partake in the research. • The RC deemed it inappropriate for the patient to participate in the research for reasons relating to their mental health condition and/or risk.

Six participants between the ages of 22 and 30 participated in the study. All participants were given pseudonyms for the purpose of anonymity, and all had engaged in

DSH on multiple occasions prior to and during their current hospital admission. In terms of methods of self-harm, participants engaged in cutting, ligaturing, and other methods including head banging, self-poisoning, and burning oneself. See Table 8 for an overview of participant demographic information. Some details have been omitted to maintain anonymity of the participants.

Table 8

Participant demographics

Name	Age	Psychiatric diagnoses	Length of stay in current admission	Nature of childhood maltreatment
Sarah	18 - 24	Emotionally Unstable Personality Disorder (EUPD)	1 – 3 years	Sexual abuse Neglect
Sophia	18 - 24	Complex PTSD (Previous diagnosis of EUPD)	1 – 3 years	Sexual abuse
Lucy	25 - 30	EUPD	1 – 3 years	Sexual abuse
Jade	18 - 24	EUPD	4 – 7 years	Sexual abuse
Laura	18 - 24	EUPD C-PTSD	Less than 1 year	Sexual abuse Physical abuse
Amy	25 - 30	EUPD	8 – 10 years	Sexual abuse Physical abuse Neglect

All participants who showed an interest in taking part in the research were suitable for the study when measured against the inclusion and exclusion criteria.

Procedure

Stage 1: Recruitment and Screening of Participants

All participants in the study were inpatients at a women's hospital in Yorkshire, UK. The hospital is a large psychiatric unit that consists of both low secure and rehabilitation wards. One participant resided on a low secure ward and the remaining participants were being treated on rehabilitation wards. Low secure wards typically treat individuals who are detained under the Mental Health Act (1983/2007) with complex mental health needs, who are a risk of harming others, and whose risk of escape from hospital cannot be adequately managed in alternative mental health placements (NHS England, 2021). The service offers treatment for mental health problems and offence related programmes, to help stabilise an individual's mental health and help reduce reoffending behaviours. In terms of recruiting participants, the researcher attended the hospital's DBT group and read out the participant information sheet (Appendix F). This was discussed with the lead of the DBT team beforehand, who had previously given consent for the DBT intervention to be used as a platform for recruiting participants for the purpose of this research. The hospital's DBT group consisted of service users from both the low secure and rehabilitation wards.

Questions were answered during the meeting and all individuals were encouraged to take the information sheet with them for their consideration. The information sheet stated that individuals could express their interest of participation to the researcher directly during a routine morning meeting which the researcher attended, or via the DBT group facilitators. A separate group meeting for past DBT attendees was organised where the same process was followed.

For participants expressing an interest, the researcher initiated the screening procedure. A hospital based Clinical Psychologist assisted the researcher in the screening of the selected clinical files against the inclusion and exclusion criteria. This included screening

clinical files for a history of childhood abuse and engagement in DSH. When deemed suitable for the study, the participants and their RC were informed. Their capacity to consent was assessed by the RC. If the patient's participation was deemed appropriate by their clinical team, they were approached by the researcher to schedule a date and time for an interview. A letter of the patient's participation was included in their clinical files (Appendix G).

All of the participants who expressed an interest in the research met the inclusion criteria and did not meet any of the exclusion criteria. However, if so, this would have been managed with the researcher meeting individually with the person who had expressed an interest, to sensitively inform them that they would be unable to take part in the research, due to issues relating to the inclusion/exclusion criteria. Additionally, the researcher did not become aware of any concerns within the DBT group, between those participating and not participating in the research.

Prior to commencing interviews with research participants, a mock interview took place with a service user at the same hospital. There is evidence that conducting mock interviews, prior to carrying out participant interviews for the purpose of qualitative research, is effective in increasing the skills of less experienced researchers in eliciting rich data (Harerimana et al., 2024). The service user who was approached to participate in the mock interview was an individual who met one of the exclusion criteria, which was undergoing therapy with the researcher at the time. They met all of the inclusion criteria for the study, including the ability to give informed consent. They were directly approached by the researcher and invited to take part in a mock interview. The service user took part in the interview schedule which lasted approximately 45 minutes. No difficulties arose in terms of the interview format and questions included within the interview schedule (Appendix H). All research documents were trialled at the mock interview to see if there were any problems with regards to understanding. This included the participant information sheet (Appendix F),

participant consent form (Appendix I) and the participant debrief sheet (Appendix J). It was reported that all documents were clear and easy to understand, so no changes were made. The service user was asked to keep the content of the interview and purpose of the study confidential, which they agreed to. They did not seem negatively impacted by this and understood that the role of confidentiality was to avoid influencing the data which could be potentially gained from other future participants. The individual was also informed that they could raise any questions or insights about the mock interview directly with the researcher following this.

Stage 2: Data collection

The method of data collection used was a semi-structured interview, to obtain data of necessary depth. This form of data collection fostered an accommodating approach, whereby questions could be tailored in response to any significance participants placed on certain experiences (Smith et al., 2009). This approach also enabled the interview to be experienced as less formal and more like a conversation with the participant (Smith & Osborn, 2008). The interview schedule was informed by various sources including a review of relevant academic and clinical literature, discussions with both the primary and secondary research supervisors, as well literature on good practice for the use of IPA in healthcare settings (e.g., Peat et al., 2019).

The interview schedule adopted open-ended questions to promote free expression on behalf of the participant. Participants were initially asked what the term *self-harm* meant to them, to understand how the participant viewed this phenomenon. It was then followed up with questions asking why they thought they started self-harming, and what led them to continue to engage in self-harm. Subsequently, questions were asked in relation to factors which reduced the chances of them engaging in self-harm. Lastly, the interviewees were asked about any advice they would like to give someone who is self-harming but would like

to stop, to give them an opportunity to express their thoughts on self-harm from a different perspective. The interview schedule was viewed as a guide to facilitate conversation, so that participants could talk freely, with little interruption from the researcher.

Interviews took place face to face in a pre-booked room within the hospital, located away from the wards to ensure privacy. Interviews generally lasted 40 to 60 minutes. Interviews were audio recorded with the use of an encrypted Dictaphone. Following the completion of interviews, data was transferred to the University of Birmingham's Research Data Store (RDS) and then deleted from the audio recorder. Two weeks after the data collection and transcription was completed, all audio recordings were deleted from the RDS.

All participants were given a pseudonym for the purpose of anonymity. At the end of the interview, participants were given the option to ask any questions they had and the debrief sheet was reviewed with them (Appendix J). This included details of the process of withdrawal from the research, should the participant have wanted to. It was explained to participants that they had up to two weeks to withdraw all or part of their data from the research study, however, none of the research participants requested to do so. Participants were informed that following the two-week period of their right to withdraw, their data would have been transcribed and included in the data.

The participants' wellbeing was closely taken into consideration, given they were considered a vulnerable group. Although it was not anticipated that the questions would cause any psychological distress, the researcher was mindful that it was possible. Therefore, safety measures were put in place such as, on the day of the interview, participants were asked to identify key staff members on shift which they could approach for additional support following the interview. Participants had the option to end or reschedule interviews at any time without needing to specify a reason. Participants and staff could request a different interview date by informing the researcher directly and should the participant wish to end or

reschedule the interview, it was emphasised that no penalties would be imposed. Participants were also advised that they could request a break at any point during the interview, whether this be for short break, or to pause the interview and return to it on another day. All participants completed their interviews in one session, with no breaks.

At the end of each interview, the researcher asked the interviewee whether they required additional support upon return to the ward, as they all had access to 24/7 nursing care. No participants requested additional support following completion of the interview. The participant debrief form (Appendix J) included information about extra support from staff, which participants could utilise to discuss any difficulties that arose during or following the interview.

During the debrief process, participants were asked if they would like a summary of the research results once the data analysis and write up was complete. Two of the participants confirmed that they would, however, were discharged from the hospital before data analysis was completed. They were advised to contact the psychology department at the hospital in the future, should they still like to receive an overview of the results. To date, these participants have not requested this information.

Stage 3: Data Analysis

All data were analysed on the researcher's computer but only when the computer was in remote working mode. This mode is governed by university encryption and was therefore considered as secure.

Data analysis was conducted according to the guidelines advised by Smith and colleagues (2022). The first step involved reading each participant's transcript several times and immersing oneself in the data. Then, the second step of exploratory noting took place where descriptive and exploratory notes were made in relation to anything said that was of

particular interest to the researcher. This involved the researcher producing a thorough and in depth set of notes, examining language used, as well as the content of the participant's experiences. An example of an annotated transcript is included in Appendix K.

The third step of analysis involved using the exploratory notes to construct experiential statements, which are statements that sum up the experiences outlined in the data, in terms of their meaning to the participant. This was followed by the researcher searching for connections across all experiential statements, with the researcher mapping out how they viewed the way in which the experiential statements fit together into clusters. The clusters of experiential statements were consolidated and arranged into Personal Experiential Themes (PETs) which were given unique titles based on their features. These steps were repeated for each interview.

Finally, the researcher compared themes across each interview to develop Group Experiential Themes (GETs) (Smith et al., 2022). As part of the analytic process, the clusters of GETs were exposed to several revisions until a *best fit* of the data was established. The GETs have been considered and presented, along with relevant quotes from the interviews, in the results section.

Validity of Research

In terms of the research methodology, researcher interpretation was needed and is a fundamental part of IPA and as such, findings might have been subjected to researcher and interpretive biases (Smith et al., 2009). The main researcher is a British female without a history of adverse childhood experiences and no history of self-harming behaviour, which will likely have influenced the interpretation of the data. However, the researcher was mindful of their own biases and steps were taken to mitigate potential interpretative bias.

Examples of strategies used included the effective use of academic supervision and keeping a reflective diary whilst conducting the research.

The use of supervision throughout the research process was pivotal in reflecting on the themes which arose from the data, and discussing any potentially distressing emotions which arose because of this. It was also beneficial for the researcher in aiding their ability to separate the roles of them as a researcher, and them as a clinician, given that the researcher works in the psychology department at the hospital in which the research took place. Furthermore, to increase validity of the data analysis process, the researcher's secondary supervisor who is experienced in the field of IPA research read one of the transcripts and reviewed the analysis in relation to this. In addition to this, the researcher wrote a reflexivity statement, as detailed below.

Reflexivity Statement

As a forensic psychologist in training enrolled on the Forensic Psychology Practice Doctorate at the University of Birmingham, and the primary researcher in the current study, I was mindful of the challenge to remain neutral. I am a part-time student and had been enrolled on the course three to four years at the time of conducting the research. I have also worked in hospital and community-based settings with adults with mental health problems for ten years. This included working in a low secure forensic unit for the past six years. During this time, I have been fortunate enough to work with both men and women with a range of psychological difficulties including those with psychosis, anxiety disorders, depression, personality disorders, intellectual disabilities and trauma related disorders such as PTSD. I have also worked with older adults with a diagnosis of dementia who were displaying challenging behaviours. In response to this, I believe I have developed a flexible and candid therapeutic approach, in order to be able to establish a robust and positive therapeutic

relationship with the service users I work with. This has been crucial in my work as I have to be able to quickly establish a rapport with service users, in order for them to feel safe and engage in psychological interventions. As I have never worked with children, I was aware of having a bias of working with only the adult client group, but also of having the opportunity of having several months to establish a rapport with a client, something which was not possible in this study.

As part of the reflective process, I also thought about where my interest for the research topic came from. Prior to and during the forensic course I have worked on a low secure ward for women with personality disorder, as well as worked on high dependency rehabilitation units for women with trauma related disorders such as PTSD and CPTSD, as well as those with dissociative disorders. A significant number of these women have experienced childhood abuse, as well as had difficulties with self-harm. As such, I was mindful of further bias in relation to what service users had previously shared with me, as well as literature and training I had engaged with around this. For instance, the reasons clients had shared with me in the past as to why they self-harm, or factors which can trigger them to self-harm. Working in a clinical setting meant I may tend to start formulating the participants' difficulties as they were talking, rather than just listening and understanding it from their perspective. As such, I was extremely mindful of this during the interviews and made a significant effort to just listen and be open to what was being told to me.

The unit I was conducting the research in, was also my place of work. As such, I reflected on whether this would influence participants to be more reserved in their answers, or more open as they know me to a certain extent (although I didn't work directly with them). During interviews, I found that service users were generally open with me from the start and were direct and candid with the answers. On reflection, I believe it's because they were aware I worked in a service with significant levels of self-harm, and therefore, they may have felt

less judged in their answers. However, I also thought about the power imbalance that the participants might experience in terms of the interview, given they are already detained in hospital under various sections of the mental health act and therefore, are unable to leave should they wish. I wondered whether they might view attending an interview within the hospital an extension of this. As such, I made a conscious effort to make the interview as informal as possible, as well as emphasising to participants that it is up to them what they want to share. Interestingly, most of the participants appeared happy to talk about their experiences, and described it as almost empowering to be able to contribute to research and felt like they were being heard and their views on self-harm actually mattered.

I reflected on my position as a female researcher, conducting interviews with female participants. I did wonder as to whether this might have been more of a positive experience for the participants, in terms of feeling more comfortable during the interview process. I was extremely mindful that all women had a history of sexual trauma from men and even though I never directly asked about their experiences, several of them often made links or volunteered information around their experiences of abuse. It did make me wonder whether they would have been so open should it have been a male researcher, given they are all survivors of sexual trauma from a man.

That said, some of the women were quite matter of fact about the abuse they had endured, as well as their self-harm experiences. They did not appear to be overly upset when talking about it and I did wonder whether there might be a disconnected between their thoughts and feelings, especially given some of them spoke about feeling “numb” a lot of the time. I did also acknowledge the fact they are in hospital for treatment, which involves talking about said experiences, so perhaps they had just gotten used to talking about such topics with professionals and saw me as an extension of this.

I also thought about my position as a younger woman of a similar age to some of the participants, as well as being from a similar background as most, i.e., a working class family in Yorkshire. I wondered whether this also aided the interview process and allowed the participants to feel more comfortable in talking about their general experiences and lives growing up. I did reflect on how different our lives were, with myself being fortunate enough to not have experienced any form of childhood abuse or trauma. Given the traumatic experiences that the women had been through, it was admirable that they were all able to establish a warm rapport quickly, as well as display a good sense of humour.

Ethical Approval

The current research project received ethical approval by the regional NHS Research Ethics Committee on 11.02.2021 (REC Reference: 21/YH/002) and met the standards of The British Psychological Society Code of Research Ethics (BPS, 2010).

Results

As part of data analysis, three group experiential themes were identified: *Journey of self-harm*; *Reasons why I self-harm*, and *Relationships and self-harm*. Within each group experiential theme, lay several sub-themes (Table 9), with convergence and divergence across participants' narratives being discussed throughout the results section. All participants contributed to the group experiential themes. See Appendix G for an overview of Group Experiential Themes and sub-themes across participants.

Table 9

Group experiential themes and sub-themes.

Group experiential themes	Sub-themes
1. Journey of self-harm	1.1 Self-harm just got worse. 1.2 Comparisons to substance addiction. 1.3 "You learn to live with it."
2. Reasons why I self-harm	2.1 When emotions get too much. 2.2 To punish myself. 2.3 To feel in control. 2.4 To feel something.
3. Relationships and self-harm	3.1 Negative relational experiences. 3.2 The importance of relationships in stopping self-harm.

Theme 1: Journey of Self-harm

The first group experiential theme reflected the journey of self-harm, which each participant had experienced throughout their lives. The theme revealed the longer-term struggles in which the participants learnt to live with DSH behaviours, with them detailing the initial escalation in the severity of DSH, as well as difficulties experienced when trying to stop self-harming. Three sub-themes were identified: *Self-harm just got worse*, *Comparisons to substance addiction*, and *Learning to live with self-harm*.

Sub-theme 1.1: Self-harm Just Got Worse.

The first sub-theme reflected the participants' experiences of self-harm getting "worse and worse" (Sarah, p. 4). Three participants contributed towards this sub-theme with the participants' narratives focusing on the onset of self-harm and how this escalated with time. Participants spoke about the worsening of self-harm, with some participants giving specific accounts of the first time they remembered self-harming. Sarah, Jade and Laura spoke about how when they first engaged in DSH, they "didn't do anything like really, really bad" (Jade, p. 3), however, this changed overtime.

For instance, Jade spoke about the first time she self-harmed, and how she did not consider it to be anything concerning at first:

I remember it being a really stressful day at school and I just remember ermmm, I didn't do anything like really really bad, the more I self-harmed the worse it got, so the first time I self-harmed it wasn't like bad but I remember using nail scissors and I used to cut my legs because ermmm, I was a dancer so like my arms, I had to wear like a leotard and stuff so obviously I didn't want people to see it. So I thought if I like cut all up my legs [pointed to top of legs] then I thought that obviously no-one would see it and I always used to listen to a certain like CD as well and I don't know

why it was just like certain songs I used to listen to whilst doing certain things. (Jade, p. 3)

Jade recalled having a stressful day at school, which she must have viewed as relevant to her in terms of the onset of self-harm. Jade viewed her first incident of DSH as not “like bad”, which insinuated that she perceived the incident of DSH as minor. However, she went on to explain that her self-harm became more of a problem as “the more I self-harmed, the worse it got”. When describing this experience, Jade spoke about “obviously” wanting to keep this hidden from others, so she cut the top of her legs as opposed to her arms. Jade was a dancer at the time so wanted to keep her injuries hidden, and they would have been exposed in other places when she had to wear dance costumes such as leotards. This highlighted the precision and thought Jade gave to engaging in DSH in such a way that she could keep it hidden from others. She also described the event as being almost ritualistic in nature, with her listening to certain songs and CDs at the time of DSH, emphasising the intimate and personal nature of her engaging in DSH.

Jade then went on to compare the escalation in DSH as to that of building up a tolerance to adrenaline:

Like people who are like adrenaline junkies, to start with like a rollercoaster and then they like, go to like, I don't know, bungee jumping, do you know what I mean?... So like I think that like the more I self-harmed, the more I had to do to make me feel the way I did. If you get what I mean. (Jade, p.3).

Here, Jade spoke about how the more she self-harmed, the more she needed to engage in DSH to get the initial feeling she felt. She compared this to someone building up their tolerance to adrenaline, with her using the analogy of someone initially starting with activities such as a rollercoaster but then progressing to activities such as bungee jumping. For Jade,

this was the reason why her self-harming became more severe; she had built up a tolerance to the effects of self-harm and therefore, needed to engage in more significant self-harm to achieve the same feeling as she did initially. Later in the interview, Jade went on to describe self-harm as a “slippery slope” (p. 8) and stated, “If I would have got help when I very, very, very first started self-harming, I probably wouldn’t have got to the situation that I’m in now” (p. 8). Therefore, Jade believed that if she had received some form of intervention in the early stages of her DSH journey, then it may not have spiralled to the point of her needing to be hospitalised to receive treatment.

Similarly, Sarah also described her DSH behaviours worsening with time:

I was in my bedroom and like, I don’t know. I’d had a really bad day and I’d done like a little cut on my arm. It wasn’t like serious. But that was the first time I’d done it, but it wasn’t like bad or anything. It was just a little bit but then it started getting worse.
(Sarah, p. 2)

Like Jade, Sarah described the first time she self-harmed in response to having experienced a difficult day, as well perceiving her initial incident of self-harm as minor in relation to subsequent episodes of self-harm, with her doing “a little cut.” During this narrative, Sarah repeatedly stressed the minimal nature she viewed the DSH as, stating that the self-harm injury was “little” and “it wasn’t like serious” but then her self-harming subsequently worsened in comparison to this.

Later in the interview, Sarah again emphasised how her trajectory of self-harm worsened with time: “Like when I first did it, like, I wasn’t in a safe environment. Like I was just sat in my room, and it was getting worse and worse” (p. 4). This painted a powerful picture of Sarah continuing to self-harm in her bedroom on her own, with the problem escalating in seriousness. When telling this account of self-harm, the researcher could hear

the desperation in her voice, likely mirroring the desperation she experienced at the time, when she realised that self-harm had become uncontrollable for her.

In terms of giving a rationale for the escalation in DSH, Laura took this a step further by linking an increase in her self-harming to experiencing further trauma in her life:

As I got older and I had more, well trauma basically happened, the worse it got... And then it came to like, I was doing it every day, twice a day, three times a day like. Even when I was at school I'd just go to the toilets and do it. (Laura, p. 2)

Laura made a direct link between the severity of her self-harm and the trauma she experienced as she aged. Laura spoke candidly about the way her self-harming behaviour escalated from daily to multiple times a day. Laura reported engaging in self-harm at school, with this emphasising her need to engage in DSH irrespective of the environment she was in at the time. Her stating that she “even” engaged in self-harm at school demonstrated the necessity of acting on her self-harm urges at the time of experiencing them.

1.2 Comparisons to Substance Addiction

This sub-theme reflected the addictive nature in which two of the participants viewed their self-harming behaviours, with both individuals viewing their journey of living with problems related to DSH as being like those of learning to live with an addiction to substances. When sharing her experiences of DSH, Amy reported resorting to self-harm to survive a difficult period of her life:

I used to have a thing where you used to go like, write down how long, so I'd go like 20 days, a month, two months, three months and then when you start again it's like ohhh I might as well just carry on now. But it's harder not to self-harm, than it is to self-harm because it's so much easier to pick something up and self-harm. People don't realise, it's an easier thing to do. I could pick something up now and self-harm

but it's harder not to... You've gotta fight that urge and you're trying to find something else to do to make you feel better...It's like drugs. It's like alcohol. People go for the alcohol to survive. I went to self-harm and a lot of it was when I was younger, especially after my mum died, I wanted to be with my mum. (Amy, p. 6)

Amy described self-harm as a survival mechanism and compared this to some people using drugs and alcohol to survive, which in her view, was another way to survive difficult life experiences. This was emphasised in the excerpt: "People go for the alcohol to survive. I went to self-harm". In Amy's case, the difficult life experiences she referred to include the death of her mother, who she was grieving for. Amy spoke about trying to gradually increase the time periods in which she desisted from self-harming as a way of trying to stop, going from "20 days to three months" without self-harm. This emphasised the phased approach Amy used in trying to stop self-harm and highlighted the difficulty in just stopping completely. Amy highlighted how difficult it was for her not to self-harm, and that giving into self-harming urges would be a lot easier for her than not giving into them. Her use of the word "fight" demonstrated the strength it takes for her not to DSH.

Later on, Amy compared her trying to stop self-harming with an individual who drinks alcohol, trying not to drink:

You have to ride the urge out. So it's like a drink, if you feel like you need a drink, you have to do something to stop yourself from having a drink. To stop yourself from having a drink, you do something else. (Amy, p. 10)

Here, Amy described not acting on self-harm urges as "[riding] the urge out", suggesting that self-harming urges can be experienced as continuous for a specific time. Again, Amy used the comparison of trying not to self-harm, as someone trying not to drink alcohol. She highlighted the importance of someone engaging in another activity to stop them

from acting on urges to drink, just like someone must do something else to distract themselves from acting on self-harming urges. Later on, Amy went on to compare keeping something in the house to self-harm with to an alcoholic keeping alcohol in the house:

Say I've got something here to hurt myself, even if I don't feel like hurting myself, that makes me feel like at least I've got something and I don't have to find it. Say I didn't have this, yeah, and I don't feel like hurting myself, I then I did, I would be more anxious because I'd have to find something, knowing you've got something can sometimes make you feel a bit more like... Yeah a safety net. It's like having alcohol in the house. You're not going to drink it because you're an alcoholic but just in case you want it. It's there. (Amy, p. 13)

Here, Amy described having easy access to an item to self-harm with as alleviating anxiety and viewed this "as a safety net", should the urge become too great. Amy compared this safety behaviour to an alcoholic keeping a drink in the house in case they wanted to act on their urges. Given that throughout her narrative, Amy highlighted several comparisons between self-harm and alcoholism, it was deemed reasonable to assume that Amy viewed DSH and her experiences in the context of an addictive behaviour.

Similarly, Lucy made a comparison between her stopping DSH to an alcoholic saying they would never drink again:

Like I have stopped now coz I felt like there's, there's other ways to stop that. It's not like I'm gonna say I'm never gonna stop self-harming because that's like saying to an alcoholic "oh you're never gonna drink again" but well I suppose, eugh I don't really know to be honest... I know that sounds bad but in some ways I think it can be addictive. (Lucy, p. 3)

Lucy's view on her stopping DSH was contradictory, with her initially stating that she had stopped self-harming but then subsequently stated that she could not say if she would ever stop self-harming. Like Amy, Lucy made a direct comparison between her experiences of stopping self-harm and an alcoholic abstaining from alcohol. Lucy clearly stated that she thought self-harm could be addictive, although sounded somewhat shameful about the fact that she viewed her experiences of self-harm within the framework of an addictive behaviour, with her saying "I know that sounds bad but in some ways I think it can be addictive."

1.3 "You Learn to Live With it"

Four participants contributed to this this sub-theme, which focused on the participants' long-term struggles in continuing to experience DSH urges and trying not to act on them. This sub-theme highlighted how participants viewed self-harm as a long-term chronic problem around which they try to navigate their recovery. For instance, Amy talked about how self-harm would be a lifelong problem for her, but how she had learnt to better manage the DSH urges:

You learn to live with it. I might go years without self-harming but I'll probably never be free from self-harm but I can try and live a normal life as much as I can without doing it. But I can't say that I'll never hurt myself ever again. But I'm gonna say I'll try not to because there's no point anymore, I don't get the same thing out of it that I used to. (Amy, p. 6)

When giving this narrative, Amy sounded resigned to the fact that she would likely never be free from self-harm. She appeared hopeful that she could go for a prolonged amount of time without self-harming and seemed content with that. Overall, Amy appeared very accepting of the fact that self-harming had become a part of her life and seemed to avoid putting pressure on herself to be completely self-harm free. Towards the end of the interview,

Amy described continuing to experience self-harm thoughts everyday but that she had developed ways to manage them:

I get thoughts everyday right, but it's just the way you deal with them like. It's the same as voices but they're thoughts. Right but when you're in a better place, you just try and ignore them, try and put the TV on and do things that, you do things that make you happy...but yeah there has been times and I've sat there and so badly wanted to hurt myself. The time before when I didn't take an overdose, I went to staff and I said I feel like this is how I'm going to be. I felt so badly wanting to, but I just had to get out of the room. Get out of, away from the things I had to hurt myself because especially on (name of current ward) I've got stuff to hurt myself with. I had to get out of that room and just had to say, it's not even like me but I had to go to someone and say I feel like hurting myself please help me. (Amy, p. 12)

Amy divulged that she continued to experience daily self-harm thoughts, with them becoming overwhelming sometimes as she "so badly wanted to hurt myself". However, she stressed the importance of being able to deal with them effectively. Amy attributed one's mood and mental state to being more resilient to self-harm urges, stating "when you're in a better place, you just try and ignore them". When recalling incidents whereby she resisted the temptation to act on urges to DSH, she reported removing herself from the situation, distracting herself with activities which provoke pleasant emotions and asking staff members who care for her to help.

When being asked by the researcher to offer some advice to those wanting to stop self-harm, Lucy referred to the fact that DSH would be a lifelong problem:

I know it's going to be hard to stop but try, try your best but in the end, you're never gonna stop but try breathing skills or try find something that you'll enjoy doing and if you enjoy it, stick to it. Just dunno just take each hour as it comes or take, each day by

day, hour by hour don't... and if you do end up doing it, don't beat yourself up about it. At the end of the day it's something that you're always gonna do and this is what my mum says to me, at the end of the day, take hour by hour, day by day, if you do do it, don't beat yourself up about it. (p. 5)

Lucy's non-judgemental and accepting attitude towards self-harm mirrored that of Amy's. She also appeared comfortable with the notion that self-harm would continue to be a problem throughout one's life, and emphasised self-compassion when trying to stop self-harming but being unable to. Lucy gave the advice of finding something enjoyable to do when trying to cease self-harm, as well as viewing the recovery process in a graded fashion, similarly to Amy. She stated that on two occasions when trying to discontinue self-harm, she needs to manage this in isolated time periods, such as taking it "hour by hour" and then "day by day", as to avoid the process of stopping self-harm becoming too overwhelming. In suggesting this, she was perhaps further supporting the notion that, whilst the urges to self-harm may lessen, they may not disappear completely.

Laura spoke about her experiences of self-harm and that she has experienced it as addictive:

I would say that when I was a young teenager at about 13, I was like addicted to it then. But then when I stopped when I was like 16 ermmm. I don't even know why I stopped for a few months, it just happened... and every time I resorted back to it.

(Laura, p. 3)

Laura highlighted the fact that she was able to stop self-harming for several months at the age of sixteen, although was unable to offer reasons as to why that was. However, of greatest significance in her account appeared to be the fact that she voiced always resorting back to self-harm. Despite being a frequent self-harmer at the time of being interviewed, Laura spoke about being addicted to self-harm in the past tense, suggesting that she no longer

experienced self-harm as an addictive behaviour. In using the term *addictive* in this narrative, Laura was not making explicit reference to comparisons to substance abuse (see sub-theme *comparisons to substance addiction*), however, Laura was perhaps using this term to describe the strength of the urges she had.

Sarah spoke about continuing to experience self-harm urges, although they were not as often or as strong as they used to be:

I used to like bang my head quite a lot and I'd like burn my hands with cigarettes. I used to also punch myself in the face but at the minute with my new medication, I'm feeling a bit more stable. I have less self-harm urges. I still get them but just not as often and as strong as I used to. (Sarah, p.1).

Here, Sarah reflected on the varying methods she previously used as a form of self-harm, however, reported feeling more stable due to the medication she was prescribed. Despite reportedly feeling more stable, she continued to report experiencing self-harm urges, although they had reduced in terms of frequency and intensity. Again, this reflected the long-term nature of dealing with self-harm urges, as experienced by the other participants who contributed to this sub-theme.

Theme 2: Reasons why I Self-harm

The second GET labelled as *reasons why I self-harm* captured the participants' experiences and perceptions of the factors which contributed to them engaging in DSH. This theme encompassed the intrinsic and intrapersonal functions of DSH described by all participants. Four sub-themes emerged as part of *reasons why I self-harm*: *Self-harms when emotions get too much*; *Self-harm to punish myself*; *Self-harm to feel in power/control*, and *I self-harm to feel something*.

2.1 When Emotions get too Much

This sub-theme captured the role that self-harm played in the alleviation of overwhelming, intense, and unwanted emotions for three of the participants. References were made to feelings of anger, anxiety and stress by the participants. When asked about reasons why Amy thought she engaged in DSH, she explained that it was a response to unwanted emotions:

That's how I used to deal with my emotions, or anger. I never got into trouble, I never got into, I'd never had a fight, I never got into a disagreement, I just hurt myself. I disliked myself a lot so... I'd felt like I'd been abandoned and I'd lived a different life from my sisters and that so I felt very...I felt rejected. (Amy, p. 4)

Amy explained how she never became involved in fights or disagreements with others due to being unable to appropriately deal with her emotions. Instead, she suggested that she would redirect the emotional turmoil she was experiencing towards herself, which led to self-inflicted injury. She linked this to disliking herself “a lot” and understood this in the context of feeling abandoned and rejected, due to her being placed in care whilst her sisters were able to live with their father. It also put into context where her fear of abandonment and lack of self-compassion likely stemmed from too. Amy went on to give another example of self-harming in response to unpleasant emotions:

I did it because I think I got scared. All my emotions were coming back and actually I think it was like. I did a bit of my psychology and it was getting too real...It was when I was doing some really bad psychology and I just, I'd just had enough. I'd had some information about my past and I was just learning how to read it, I was just going over it and over it, and that's what I used to do. (Amy, p.5.)

Amy described self-harming in response to fear as opposed to anger, because of engaging in in-depth psychotherapy related to her past. The way Amy referred to the piece of

psychology work being “really bad” might have reflected the intense and negative emotions which Amy experienced in response to the therapy. The way she stated she had “just had enough” portrayed the distress she was experiencing in response to feeling emotionally overwhelmed, with this triggering periods of self-harm behaviour.

Laura spoke about self-harming in response to feeling anger: “When I’m angry, yeah it’s helpful, because it can bring me back down to normality just from self-harming, cutting mainly” (Laura, p. 9). Here, Laura spoke about self-harm as a beneficial coping strategy, stating that she found it helpful as it could ground her quickly, and bring her back down to “normality.”

When speaking about her experiences of DSH, Lucy spoke of it giving a sense of release from unwanted emotions:

It made me feel better when I self-harmed... Just relieving pressure and anxiety and stress and upset... I didn’t know anything different at the time. So that was my only, ermmmm like, sort of like release at the time. (Lucy, p. 1)

I feel a release. I feel like everything just off my shoulders, I feel like everything’s just gone. Do you know what I mean? I know this sounds bad but when I see blood it feels, it makes me feel a lot better... It makes me feel a lot better seeing blood. It makes me relieved and that everything feels better. (Lucy, p. 5)

When describing her self-harm experiences, Lucy described experiencing a sense of relief and release, using both past and present tenses when speaking. This suggested that not only was the release of emotions a historical function of self-harm, but that it continues to perpetuate her use of DSH currently. She referred to not knowing anything different at the time of the onset of self-harm, and DSH being her only way of releasing the emotions she felt, suggesting that she was engaging in self-harm due to an absence of other coping strategies. Lucy also talked about the significance of seeing blood in the self-harming

process, in the sense that it makes her “feel a lot better seeing blood”, which may be linked to the fact that she could observe the extent of the injury she caused to herself.

2.2 To Punish Myself

This second sub-theme captured the five participants’ need to punish themselves, in response to different factors. This sub-theme portrayed the relationship between the abuse and stressors the participants experienced in childhood, and how this led to participants believing they had “done something wrong” (e.g., Laura, p. 4), and therefore needed to punish themselves.

Laura reported that the function of self-harm has “been more for like self-punishment, than the actual pain of it” (Laura, p. 3). She went on to give more context to this realisation:

I had a lot of trauma through childhood, teenage years and like when I first turned 18. Errmmm staying at people’s houses on a weekend until like, party all weekend coz if not I’d literally be home, otherwise I’d have nowhere to stay. Like I still went to work, still went to college, I still did everything like that like... Yeah I managed to keep all that up and I was basically just self-medicating with drugs and alcohol and sex. And then I was in like an abusive situation, not in a relationship but friends with benefits if that’s what we want to call it. It was my drug dealer so it just went tits up from there, he got me like around quite a lot of bad people and things happened and I just didn’t see it until recently but I just always thought it was like my fault, like I’d done something wrong. So like I was just punishing myself. (Laura, p. 4)

Laura’s narrative highlighted the chaotic and abusive lifestyle she endured at the time of heightened self-harm. The way in which she spoke about her experiences was fast paced and chaotic, possibly mirroring how she might have experienced life at the time. She reported experiencing trauma throughout developmental periods, and that she was in an abusive

situation at 18 years old with a “friend with benefits”, at the peak of her self-harming behaviours, which led to her experiencing further trauma. She described being at people’s houses on a weekend and self-medicating with drugs, alcohol, and sex. She stated that up until recently, she had “always thought it was like my fault, like I’d done something wrong” when referring to the abusive situations she found herself in, with this having led her to punish herself in the form of self-harm. The way Laura spoke about being to blame for the abuse and using self-punishment as a function of self-harm in the past tense, insinuated that she no longer engaged in self-harm for this reason.

Similarly, Sophia spoke about how she engaged in self-harm in response to feeling the need to be punished:

So before I self-harm, everything is going really, really fast and I have a lot of internal pain and then during self-harm, I feel like everything has stopped and the pain has stopped, the punishment has stopped when I’ve done it and I don’t need to be punished anymore (Sophia, p.6)

Here, Sophia spoke of the self-harm as a punishment, and that once she had self-harmed, she “[didn’t] need to be punished anymore.” For Sophia, this narrative also linked to the sub-theme *Self-harms when emotions get too much*, as she spoke about self-harming in response to “a lot of internal pain”. It appeared that Sophia’s negative self-talk linked to her belief that she needed to be punished, and therefore she needed to carry that action out herself. Sophia’s account highlighted the erratic nature of her mental state prior to DSH and how this was in stark contrast to how she felt following the self-harm, and once she believed the “punishment has stopped” and things seemed somewhat calmer. Earlier on in the interview, and when asked which factors she believed contributed to the onset of her self-harm, Sophia directly linked her need to punish herself to the trauma she had endured as she stated it was “obviously the childhood abuse, making me feel like I needed to be punished

and that's what I deserved" (Sophia, p. 2). In this context, Sophia portrayed her self-harm like a compulsion to re-enact the abuse she suffered and revictimised herself, as this was what she inherently believed she deserved at the time.

Sarah explained how she self-harmed as "... sometimes I thought I was a bad person and I deserved to do it but other than that I don't really know why I did it" (Sarah, p. 2). Like Sophia, Sarah spoke about how her negative beliefs about herself, led her to feel like she deserved to be hurt, even if she needed to be the one to do it. She voiced confusion about the function of her self-harm behaviour and volunteered that, in hindsight, the thought that she was a bad person who deserved to hurt herself was the only reason she could think of for engaging in this behaviour. Jade went one step further in her narrative, detailing specific situations which increased her need to engage in DSH as a form of self-punishment:

Well, when I started self-harming, I was already struggling with my eating... first of all I was like stressed at school, so I used self-harm because, I don't know why I, yeah, I just did it but errmmm also I used it as like a punishment, like if I'd thought I'd eating too much, or if I didn't like myself I'd kind of punish myself, so I used it as kind of like a punishment. (Jade, p. 1)

Here, Jade spoke about the complex relationship between her disordered eating and self-harm, both of which seemed to be in response to her negative self-image and stress from school. She reported self-harming as a punishment for eating what she perceived to be too much or if she did not like herself in any way. It appeared that at this point in her life, Jade was highly self-critical and had low self-esteem, with these characteristics likely having maintained her problem with DSH. Amy also highlighted the link between negative self-image and the need to harm herself by saying "If I'd got upset, I'd hurt myself...I would take it out on me. If you were horrible to me, I'd go back to wherever I was and hurt myself"

(Amy, p. 3). Here, Amy reflected on the process whereby when others were unkind to her, she reinforced this further by hurting herself and punishing herself for other people's behaviour.

2.3 To Feel in Control

The third sub-theme captured the role self-harm played in trying to feel some form of power/control at a point in the participants' lives, where they felt they had little power/control elsewhere. Two participants contributed to this sub-theme. Sophia described the following:

It was like a little, with the trauma it was supposed to be a little secret and I think with self-harm that was supposed to be secret but it was where I was both the perpetrator and the victim. So it gave me control to know that no-one else has to hurt me, I can hurt me and I don't have to let anyone else hurt me. (Sophia, p. 3)

This illustrated the role of secrecy which was pertinent to both the trauma she survived and her engagement in self-harm. She reflected on self-harm as a way of her inflicting the abuse on herself, so that no-one else would have the power to hurt her, as she was already doing it to herself. The way in which she referred to herself as both "the perpetrator and the victim" suggested that she viewed self-harm as abuse in itself. She further reinforced this idea by explaining the function of self-harm as "power probably... knowing I can do something to my body that's harmful but it's me that's doing it" (Sophia p. 2). Again, this emphasised the fact that Sophia engaged in DSH as a way of taking power away from the abuser, choosing to harm her body in a way that she had control over.

Jade voiced a similar perspective on the relationship between control, abuse and self-harm:

Sometimes I used it as like, a way of like, control like, if that was the only control I had in my life if you know what I mean and like hurting myself, and and it made me feel like I had power so like even if like other people hurt me, I know that I can

always hurt myself more. Do you know what I mean so like I had the power...

Whereas like when other people hurt you, you're not, you don't have power over that (p. 1).

Jade stated that no matter how much other people hurt her, it made her feel powerful to think that she could always hurt herself more. There appeared to be an element of finding the uncertainty of others hurting her daunting and therefore, she would take control of this by hurting herself anyway, so that if others were to hurt her, it would have less of an impact. She reiterated this point later in the interview by stating "I know that if I'm like self-harming I've got the power. Do you know what I mean? I know that sounds a bit weird... Yeah so like, I've got more power than anyone, because I can hurt myself as much as I want" (Jade, p. 6). Here the researcher understood this statement as if anyone was to hurt Jade, physically or emotionally, she ultimately took some form of solace in the fact that she had the power to always hurt herself more.

2.4 To Feel Something

Previous sub-themes captured the view that participants self-harmed in response to experiencing emotions and beliefs that they found overwhelming and unpleasant.

Contrastingly, this sub-theme portrayed how not feeling anything and experiencing a certain "numbness" (e.g., Amy, p. 11) could also trigger episodes of self-harm. Three participants contributed towards this sub-theme.

Laura reflected on how she began self-harming as a desperate bid to start feeling something:

I first started self-harming when I was like 10 and I think it was because I was like, I was quite numb. And I didn't feel anything and I can remember like whacking my

arm on the door and like scratching all across my arm. I had this urge to actually feel something so after this I just like started cutting myself. (Laura, p. 1)

Laura reported feeling numb from a very young age and having an urge to actually feel something. It appeared that in response to not feeling anything emotionally, she would try to change this by inflicting physical pain on herself. In her narrative, Laura went on to explain that she still felt numb, even when self-harming, and this could lead to her inflicting injuries, which she could not feel:

I can do like head banging for instance to get something out of my head. And I'll just keep getting worse and worse coz like I can't feel the pain. So you just do it harder and it like gradually, you just don't feel the pain... Always I just feel numb. I can just like cut my arm open and like stare at it pouring with blood and I'm not even feeling it. (Laura, p. 6)

This description also linked to the sub-theme *self-harm got just got worse*, which lay within the GET: *Journey of self-harm*. Laura described how because of a lack of pain she felt during self-harm, and the desire to feel something, her self-harm escalated as she could not feel the pain. She reported being able to observe the damage she was doing to her body whilst being physically disconnected from the pain and injury, illustrating the detachment Laura felt between her mind and body at the time.

Amy similarly spoke about how the onset of depression led her to feel devoid of any emotion and an inability to feel the self-harm she engaged in:

When I was so bad in depression, I went and had my first breakdown and I couldn't feel anything. I used to hurt myself and not even feel anything. I was I, I, I'd cut myself and I'd not even know that I was bleeding or whatever. I'd just do things and not have, depends how far you are in your depression... The beginning of your depression, I'd say, when you're really, really bad, you don't feel anything. You don't

even know what sort of, what is going on. It's like adrenaline, that you have and you hurt yourself and you don't know you've done it really. I wouldn't even know there's a wound there. (Amy, p. 12)

Amy highlighted how depression stopped her from feeling anything, and like Laura, she would injure herself without being aware of this. Amy's account seemed somewhat more extreme than Laura's in the sense that she would not know she had self-harmed or inflicted a wound, rather than just seeing it visually but not feeling it physically. Amy elaborated on this point further by saying:

Sometimes, it's hard to describe but sometimes I'd feel numb and I used to feel like I was dead inside...And sometimes I used to hurt myself just to feel something and if I could feel it then I know I'm still alive basically. Because sometimes I was so numb, so empty, I was just so, it was like I was just floating through my life...Yeah so like try and hurt myself just to feel something. Like I used to stab myself and stuff just to feel something. I never felt something. (Amy, p. 11)

Amy progressed to describe the complete disconnect she felt between herself and her experiences at the time, with her feeling as if she "was just floating through life".

Interestingly, she described her numbness to the extent of feeling "dead inside", and that she would hurt herself to see if she could feel it to confirm that she was alive. Amy's narrative emphasised how significantly she was experiencing dissociative symptoms at this point in her life.

Jade described a slightly different relationship between feeling numb and self-harm:

I'm totally full so full I feel like I could burst so that's why I want to self-harm to get it out or I'm completely numb, I can't feel anything and I want to feel something, want to feel something physically coz I can't. (Jade, p. 7)

Here, Jade spoke about the ‘all or nothing’ experiences she encountered when it came to emotions, overlapping with the sub-theme *self-harms when emotions get too much*. She reflected on the fact that she engaged in DSH when she felt too overwhelmed, on the one hand, to alleviate the emotions, or on the other hand, to feel something physically, when she felt completely numb.

Theme 3: Relationships and Self-harm

This was the last group experiential theme and all participants contributed towards it. It looked at the impact which negative relational experiences and an absence of support had on their self-harm journey, as well as the importance of positive support in their recovery from self-harm. This GET was comprised of two sub-themes: *Negative relational experiences* and *the importance of relationships in stopping self-harm*.

3.1 Negative Relational Experiences

This sub-theme captured the impact which negative relational experiences had on the participants’ engagement in self-harm, particularly the onset of it. Amy spoke about how being regularly moved around placements led to her engaging in DSH as a way of coping:

I was in care and I was just moving from place to place...I’d moved in a year to about 12 different places, from a week, to a couple of days, to about 6 months... And I just couldn’t hack it and that was like my way of just like releasing something and I’d wonder, I used to get upset and wonder why people couldn’t cope with me. (Amy, p. 2)

Amy spoke about being to multiple places in one year and that she “couldn’t hack it”, so she would self-harm as a way of “releasing” the distress she experienced. She also attributed the frequent change in care givers to internalising a belief that others could not

cope with her, and that she must have been the root of the problem. This negative view of herself likely maintained her difficulties with self-harm. When asked about anything which may have helped her with her self-harm struggles at the time, she explained:

Maybe I could have tried to speak to the staff but we had different staff like here, and I was in a kid's home. So often there were such different ones that you didn't know the person... You might like that person, which I might talk to, but they might not be here the next day. (Amy, p. 5)

Again, this emphasised the inconsistent care Amy received whilst growing up, and that in addition to contributing to her problems with self-harm, it also stopped her from reaching out for help from staff in the children's home. For Amy, it appeared she only felt comfortable talking to people which she liked and reported that the staff members changed too frequently for her to build a rapport with them. Similarly, Sarah spoke about her experiences of being placed into foster care as a significant event which led to her engaging in self-harm:

Because when I was younger I got moved into foster care...I think it really started when I was about 13, because I was getting bullied at school and then I was just feeling really rubbish. I knew it wasn't normal but I just didn't like tell anyone, until like people noticed. (Sarah, p. 1.)

Sarah talked about the impact that being placed into foster care, coupled with being bullied at school, led to her feeling "rubbish" and engaging in self-harm. Sarah acknowledged that at the time, she was aware that self-harm was not a usual behaviour which someone engages in, and despite this, still did not reach out for help. Likewise, Jade reflected on how being bullied at school had, along with a perceived lack of support at home, contributed to the onset of self-harm:

My aunty died from cancer and my mum was quite like, I wouldn't say she was depressed but obviously that was her sister so like she was... Grieving so I never felt like I, and I didn't have a good relationship with my mum at the time, so I never felt like I could go to her when I was upset or anything, coz I felt like you know she was, she'd just lost her sister how could I say that and then... And I think like I got picked on a lot at school and then I went, got put under a lot of pressure for my GCSEs [General Certificate of Secondary Education] and stuff and school work. I know that sounds a bit silly. (Jade, p. 2)

Jade highlighted that being picked on at school, along with feeling pressured by others whilst undertaking her GCSE, gave rise to her self-harm. She viewed herself as not having a good relationship with her mum, and felt unable to talk to her when she was upset about anything. Jade seemed to believe that her problems at the time would have been a burden to her mother, rather than believing her mother would have wanted to help. She also appeared to minimise her experiences and was embarrassed about the factors, which led to her self-harming, as she stated, "I know that sounds a bit silly".

Lucy also spoke about how the way she was treated by other people from a young age contributed to her engaging in DSH: "... because something happened to me when I was younger as well, bullying and then just not like being accepted in society, ermm being gay and things like that. People would just like take the piss" (Lucy, p. 4). Lucy reported how she viewed being bullied, not feeling accepted by others, and her sexuality, as contributing factors to problems with DSH. Although she was vague when stating "something happened to me when I was younger", it was presumed by the researcher that she was referring to her experiences of childhood sexual abuse, which was well documented in her clinical notes. This highlighted the multifaceted nature of self-harm, in terms of its development for Lucy.

Laura spoke about how being exposed to domestic violence and feeling invalidated were two factors which contributed to the start of self-harm: “I witnessed a lot of domestic abuse in the family and aggression... and obviously not very [pause] people didn’t like validate my feelings as such. I’d say” (Laura, p.1). Similarly, Sophia explained in her interview that a healthy childhood may have prevented her from engaging in DSH:

I think what would have helped me cope. I think it would have just been a healthy childhood, where they didn’t put bodies down and they didn’t criti criti criticise bodies, they didn’t ermmm not have somebody to talk to. Just I think if I had a healthy childhood, I know no-ones is perfect but I feel if I had a childhood where it was validating, reassuring, I could open up, there were no judgements, they wanted me to be healthy rather than perfect. (Sophia, p. 4)

By Sophia referring to a childhood which may have prevented her from engaging in self-harm, it was presumed that she was raised in an environment opposite to this. She highlighted the importance of being able to open up, feel validated, reassured and not feeling judged as key principles of a healthy childhood. She acknowledged that “no-ones is perfect” as if to demonstrate that she did not have high or unrealistic expectations of what relationships at home should look like.

3.2 The importance of Relationships in Stopping Self-harm

The second sub-theme captured how positive relationships were viewed as being pivotal in trying to stop engaging in DSH, with four participants contributing to this sub-theme. Relationships mentioned included those with peers, professionals, family as well as romantic relationships.

Amy talked about the importance of peer relationships in the hospital, and she viewed them as having a positive and significant impact on her stopping self-harm:

I've made it this far because of the patients in this ward as well. People, we've helped each other, me and [name of service user], we've helped each other so much together, there's other people, me and [name of another service user], we went through it together, we've come through it together, because the staff yeah, are there to help us but what sometimes people think that it's bad, it is bad sometimes that patients help each other, but what they don't realise is, we've been through that same thing, right so I can probably help somebody, as long as I'm not encouraging them to hurt themselves, I can help that person better than a member of staff can... I know what they're going through. (Amy, p.7)

Amy talked about how she and a peer had supported one another throughout her hospital admission, and she perceived that they had both benefitted from the relationship. She viewed this relationship as more helpful compared to relationships with staff, in terms of stopping self-harm, as she believed that she and her peer understood and could relate to what they had each been through.

Amy went on to describe a romantic relationship she developed with a peer in the same hospital:

I think the reason why I like myself a lot more is coz I know I can be myself, I've found proper love in a hospital, where you wouldn't think so. But I, I have, all it is, in our minds our relationship is the same as anybody else's, right, so that's helped me love myself... Yeah and like acceptance of myself. (Amy, p. 8)

Here, Amy reflected on the significance that feeling accepted within a relationship had in terms of improving her view of herself. The way in which she stressed that her relationship "is the same as anybody else's", suggested that Amy believed to some extent that others might have questioned the validity of her relationship. This might reflect the stigma she faced whilst being in a relationship with another mental health patient, or it could have

been her perception that others thought less of her romantic relationship when compared to that of others. Lastly, part of Amy's advice to individuals who self-harm but would like to stop was that "There's no point trying to stop self-harming, if you haven't got the right support around" (Amy, p. 13). Again, this emphasised the importance which Amy placed on having support when trying to recover from self-harm.

Sarah discussed the positive impact that building relationships with hospital staff and peers had on trying to stop self-harm:

Since I've been in hospital I've learnt like little skills and built relationships with like peers and the staff. And like I didn't really have many friends when I was younger so it's a lot more easy and things here." (Sarah, p. 4)

Here, Sarah reflected on the contrast between forming relationships with staff and peers in hospital, and the lack of friends she had when she was younger. It is likely that having the experience of developing positive relationships with others made her feel more accepted by others and reduced the need to self-harm in response to feeling bullied or lonely.

When Sophia was asked about factors which might have reduced the chances of her self-harming in recent times, she responded with:

Family, friends, if I'm with them I won't do it anymore. I've caused them too much trauma, I've caused me too much trauma, trying to self-harm in front of them.

ErmMMM, I haven't done that with my friends... So the people I'm with. I'd probably say that's the main thing. The people I'm with. (Sophia, p.11)

Here, Sophia reflected on the impact her self-harming behaviour had on her family, with her believing she had caused herself and her family "too much trauma". Therefore, the possibility of causing her family more psychological harm because of her self-harming behaviours prevented her from acting on her urges. As Sophia valued her relationships with her family, this enabled her to consider the impact her behaviour had on others. Similarly,

Laura talked about how being around family and friends was a situation which reduced her engagement in self-harm: “Probably being around my nephews and my family... Like, ermm being around friends. Going out and like I dunno grabbing food with a friend or going shopping” (Laura, p. 10). It appears that Laura viewed being around family and friends and engaging in activities with them as a helpful distraction.

The overarching narrative of participants in this sub-theme was the importance of relationships. Specifically, this was having someone with similar experiences who participant’s felt understood by, having support from people whom they had a strong attachment with, or having relationships with people who they did not want to have a negative impact on.

Discussion

The GETs and sub-themes presented a trajectory of self-harm for the participants, including: factors which contributed to the onset of their self-harm, factors which participants perceived to impact their engagement in self-harm, as well as their experiences of recovering from self-harm in hospital. Therefore, it was deemed more appropriate to answer the research questions individually.

How Do Hospitalised Women with a History of Childhood Abuse Make Sense of Their Experiences of Self-harm?

In the GET theme *Journey of self-harm*, all participants spoke about their personal journey of self-harm. The theme revealed the longer-term struggles in which the participants had learnt to live with DSH behaviours, with them detailing the initial escalation in the severity of DSH, as well as the difficulties in trying to stop self-harming. Although participants did not make direct reference to biological issues, the findings from the study could be viewed within the biopsychosocial model in that participants spoke of social and

psychological issues they had all experienced (Paris, 2020). Furthermore, they all had diagnoses of personality or trauma related disorders which would imply a biological element to their experiences.

The first sub-theme *Self-harm just got worse* highlights the escalating nature of three participants' engagement in self-harm. These participants spoke collectively about how their self-harm started off with engaging in what they perceived to be minor self-harm injuries, however, with time their DSH worsened in terms of frequency and severity. They all expressed some insight into the fact that their self-harm became more uncontrollable. For Jade, she attributed this escalation in self-harm to her building up a tolerance to the effects of self-harm, thus needing to self-harm more to achieve the same initial feeling she experienced at the beginning of her self-harm journey. Laura, however, made a direct link between the severity of her self-harm and the trauma she experienced as she aged. These results are similar to that of a qualitative study by Rouski and colleagues (2020), who explored the experiences of adolescents in residential care. One theme which emerged from their data was *The black hole of self-harm*, where participants spoke about not foreseeing the possibility that self-harm would escalate and they would feel unable to stop using it as a coping mechanism.

The second sub-theme *Comparisons to Substance Addiction*, builds further on the first sub-theme. This sub-theme captures the importance of language used by participants, and their direct comparisons of self-harm to other addictive behaviours. Two of the participants viewed living with problems related to DSH as like those learning to live with an addiction to alcohol and/or drugs. For instance, Amy compared a self-harmer trying not to self-harm to an alcoholic trying not to drink alcohol. When talking about not acting on self-harm urges, Amy stated "you have to ride the urge out." Here, she appears to be referring to the use of 'urge surfing' which is a distress tolerance technique which individuals use to refrain from acting on one's own unwanted behaviours (Shonin & Van Gordon, 2016). This technique is typically

used with those who are recovering from substance misuse problems (Dharmadhikari & Sinha, 2015), and highlights the similarities between how the participant experiences self-harm in comparison to addictive behaviours such as substance misuse.

Similarly, Lucy explained that her saying she would never self-harm again, was like an alcoholic saying with certainty that they would never drink again. It is unsurprising that the participants compare their engagement in self-harm to other addictive behaviours such as substance misuse, given evidence supporting a neurochemical component to self-harm. For instance, when an individual is injured, this triggers the brain to emit endorphins and endogenous opioids which act as analgesics and can increase feelings of positive well-being (Harvard Health Publishing, 2021). Research has shown a difference in the levels of endogenous opioids in those who have a history of repeated self-harm, with such individuals showing naturally lower levels of opioids (Sher & Stanley, 2008; Sher & Stanley, 2009). Studies have evidenced that chronically lower levels of endogenous opioids may be linked to experiences of childhood abuse and pre-disposed genetics (Stanley, 2010), and as such, individuals may engage in repeated self-harm at times of stress, to increase opioids and self-soothe using these chemicals released by the brain. As such, this may contribute to the seemingly cyclic use of self-harm, with it becoming addictive in nature.

Furthermore, there is a considerable amount of theoretical literature which proposes that DSH can be viewed in the context of a behavioural addiction, however, there has been little empirical research to test this claim (Victor et al., 2012). Victor and colleagues (2012) highlighted in their study that only negative reinforcement perpetuated DSH, whereas in those addicted to drugs, both positive and negative reinforcement perpetuated the use of substances.

Some studies have reported that the emotional state and physical urges prior to self-harm, appear to mirror withdrawal symptoms reported by individuals addicted to substances (Faye, 1995; Washburn et al., 2010). Nixon et al. (2002) developed a self-report tool based on the DSM-IV (APA, 1994) criteria for substance dependence, and found that approximately 80% of participants met more than five of the criteria in the context of DSH. Lastly, a literature review carried out by Blasco-Fontecilla et al. (2016), concluded that DSH behaviour is better understood as an addictive behaviour, and treatment interventions for DSH should take this into account.

From Their Perspective, What Factors Affect Their Engagement in Self-harming Behaviours, Particularly What has Caused Them to Self-harm on Some Occasions but not Others?

The GET *Reasons why I self-harm* best captures the factors which participants identified made them more likely to engage in self-harming behaviours. Within this lay four sub-themes: *Self-harms when emotions get too much*; *Self-harm to punish myself*; *Self-harm to feel in control*, and *I self-harm to feel something*.

The sub-theme *Self-harms when emotions get too much* captures the role that self-harm played in alleviating overwhelming, intense and unwanted emotions for three participants. It is unsurprising that this sub-theme emerged given four of the participants had a diagnosis of EUPD, for whom difficulties with emotion dysregulation are prominent (APA, 2013). The relationship between DSH and problems with emotion regulation is well evidenced within academic literature, with a recent meta-analysis which reviewed 49 articles, having found a significant association between emotion dysregulation and DSH (Wolff et al., 2019). In addition to this, a qualitative study by Selenius and Strand (2017) explored the experiences of self-harm and aggression within women who had been admitted to forensic psychiatric care. They also found similar results whereby the participants reported self-

harming in response to feeling emotionally overwhelmed, in particular, in response to intense feelings of sadness, hopelessness, anger and anxiety (Selenius & Strand, 2017).

The second sub-theme *Self-harm to punish myself* portrays the relationship between the abuse and stressors the participants experienced in childhood and engaging in self-harm as self-punishment. Five out of the six participants contributed to this sub-theme. Laura and Sophia both spoke about the need to punish themselves as that was what they thought they deserved because of the abuse they experienced. Sarah's self-punishment appeared to be in relation to negative cognitions about herself, such as being "a bad person", and similarly, Jade spoke about self-harming due to not "liking herself". Amy spoke specifically about how she would hurt herself in response to others being cruel towards her. These findings are similar to that of a qualitative IPA study (Stänicke, 2021), which explored the lived experiences of a clinical sample of adolescent girls in Norway, who engaged in self-harm. From their data emerged a GET labelled *The punished self – I deserve it*, whereby six participants described self-harming as a way of inflicting pain on the body as punishment, as opposed to directing their anger towards others.

Two participants contributed to the third sub-theme *Self-harm to feel in power/control*, which describes the role of self-harm as a way of feeling in power/control, when they felt otherwise powerless in their lives. Both Sophia and Jade referred to the fact that they self-harm as a way of inflicting the abuse on themselves, so that no-one else had the power to hurt them, as they were already doing it to themselves. These findings are similar to that of a qualitative study by Baker and colleagues (2013), who explored the experiences of self-harm in women who were receiving treatment in a medium secure unit. One of the themes drawn from the data was '*crossing the line*', which included the concept of control as being significant in the function of self-harm, particularly when feeling controlled by others (Baker et al., 2013),

In terms of the last sub-theme *I self-harm to feel something*, three participants contributed to this, and described engaging in DSH to feel something, in response to chronic feelings of “emptiness” and “numbness.” Given all participants were survivors of sexual trauma in childhood, it is likely they experienced dissociative symptoms. This assumption is supported by a meta-analysis conducted by Vonderlin and colleagues (2018), who found higher levels of dissociative experiences in those with a history of childhood abuse when compared to those without a history of childhood abuse, with the highest levels of dissociation associated with CSA. Likely experiences of dissociation might explain the participants’ accounts that they all self-harm to “try and feel something.”

In terms of factors which help reduce the chances of participants engaging in DSH, the GET *Relationships and self-harm* and the sub-theme *The importance of relationships in stopping self-harm*, best capture the role of positive social support in the reduction of self-harm. The accounts of four participants formed the basis of this sub-theme, with them all detailing how different relationships had helped them to resist self-harm urges. For instance, Amy talked about how forming relationships with peers within the hospital setting, as well as becoming involved in a romantic relationship with a peer, had led her to be more accepting of herself and feeling accepted by others. This, in turn, helped reduce her self-harming behaviour. This is understandable, given increased self-esteem has been found to improve overall mental wellbeing (Gilbert & Irons, 2005), and social support increases self-esteem (Harris & Orth, 2019). Research has also shown that self-esteem and social support can act as a protective factor against common mental health problems in adolescence (Liu et al., 2021). Sarah, Sophia and Laura all spoke about the importance of relationships with families and friends, in reducing their self-harm behaviour, seeing them as protective factors. This is similar to the results of a qualitative study looking at protective factors for self-harm in a

population of self-harmers supported by a mental health team in the community, where participants viewed personal support as a protective factor (Caulfield, 2014).

Methodological Strengths and Limitations

The generalisability of qualitative research is typically limited by small sample sizes, with the current research having six participants. Furthermore, given the research was conducted on an extremely specific group of women, having been hospitalised and having a history of childhood abuse, this reduces the generalisability of the findings even further. That said, the data collected provided a richness of personal and individual experiences that will help inform clinical work (Caulfield, 2014). The aim of IPA is to gain insight into a small and specific group of people and therefore, the data is not intended to be generalisable to a large population of people. Adhering to IPA principles, a homogenous sample was recruited to the best of the researcher's ability (Smith et al., 2009), with all participants being young white British adults, all of which had a history of childhood sexual trauma. However, it should be noted there will inevitably have been some variation in how everyone has experienced their life events, and the environments they grew up in.

In terms of the research methodology, researcher interpretation was needed and is a fundamental part of IPA and as such, findings might have been subjected to researcher and interpretive biases (Smith et al., 2009). The main researcher is a British female without a history of adverse childhood experiences and no history of self-harming behaviour, which will likely have influenced the interpretation of the data. However, the researcher was mindful of their own biases and steps were taken to mitigate potential interpretative bias. Examples of strategies used included the effective use of academic supervision, keeping a reflective diary whilst conducting the research and writing a reflexivity statement (Appendix M).

Implications for Clinical Practice and Suggestions for Further Research

Gaining a better understanding of the personal experiences of self-harm within hospitalised women can help inform risk assessment and management processes for those at risk of or currently self-harming. This may lead to better-informed and person-centred hospital-based interventions and policies, as well as aid community-based programmes going forward. Understanding the experiences of hospitalised women who DSH, with a history of childhood abuse, also provides support for the importance of implementing TIC, given the participants often made links between their childhood trauma and engagement in DSH.

Two of the core principals of TIC are recognising the importance of empowerment and collaboration and promoting this within service users' care pathways (Office for Health Improvement and Disparities, 2022). For instance, women with a history of trauma have likely been silenced and had little choice in their lives and as such, service users should be actively involved in their treatment pathway (Wilson et al., 2015). Presenting individuals with various treatment interventions which would be of benefit to them, and them making informed decisions about which interventions they would like to engage in would be one way to do this. In terms of trauma informed interventions, a number of treatments have been identified as resulting in a significant reduction in PTSD and associated difficulties such as anxiety and depression. These include mindfulness (Kelly & Garland, 2016), Trauma Recovery and Empowerment Model (Mason-Moyer et al., 2020), Cognitive Behaviour Therapy (Wieferink et al., 2017), Cognitive Processing Therapy (Asmundson et al., 2019) and Eye-Movement Desensitisation And Reprocessing which has been shown to be effective across a range of cultures (Wilson et al., 2018).

Within the current literature of TIC, there appears to be a main focus on reducing the use of restrictive practices such as the use of seclusion facilities and physical restraint

(Muskett, 2014). A lot of attention has also been given to adapting the physical environment of those residing on hospital wards to make it a more homely and welcoming environment, with the use of more pleasant colour schemes, comfortable furniture and the use of calming sensory techniques such as the use of soft music, sensory rooms/items and adequate facilities for service users to take some time-out and de-escalate (Champagne & Stromberg, 2004).

It is also important to note that trauma is not faced independently of one's cultural environment and as such, this should be heavily considered when trying to understand and treat individuals. Cultural considerations are crucial in understanding a person's trauma, as these influence how an individual recognises, understands and makes sense of the traumatic experiences they have survived (Ranjbar et al., 2020). Therefore, TIC should include cultural humility, which promotes reciprocal learning between cultures, as opposed to making assumptions about one's experiences, needs and beliefs (Engelbrecht & Jobson, 2016).

The results indicate that further thought should be given to treating self-harm in the framework of an addictive behaviour. Viewing and treating self-harm within the context of an addictive behaviour may be more validating for those who engage in self-harm, as it reflects the intense and compulsive urges which accompany difficulties with chronic self-harm. Furthermore, it may lead to more effective treatment interventions being implemented for those who self-harm, with a history of childhood abuse.

Understanding the factors that can impact the likelihood of self-harm in a vulnerable group of individuals, such as women who are hospitalised with a history of childhood abuse, is of particular importance. Such individuals can engage in repeated and severe acts of DSH and given the strong association between DSH, accidental death and suicide, the need for effective and accessible interventions is vital for all those who require them. Although research is growing with regards to risk factors for self-harm, research is scarce in relation to

exploring protective factors for DSH in this population. There is a real need for future research to focus on factors that may prevent an individual with a background of ACEs from engaging in DSH, as well as actors that may support individuals to stop self-harming.

Therefore, future research should focus on protective factors for DSH.

The current research explores the lived experiences of white british women only and therefore, future research should consider understanding the experiences and manifestation of self-harm in males and other genders. Furthermore, future research should consider the experiences of self-harm of women from other cultures and of other ethnicities, given these may be different from women of a white british background.

Conclusion

The findings have highlighted the role emotion dysregulation, a need to feel in power/control, self-punishment, and feelings of chronic numbness and dissociative experiences, play in maintaining self-harming behaviours in hospitalised women with a history of childhood abuse. This is in line with previous research which has found a link between self-harm and emotion dysregulation (Wolff et al., 2019), a need to punish self (Stänicke, 2021) and dissociative experiences (Vonderlin et al., 2018). The findings also have highlighted the significance of negative relational experiences on the onset of self-harm, as well as the importance of social support as a protective factor. Little research has been conducted into protective factors for self-harm, however, the findings are supported by previous research which has highlighted the importance of personal and social support in the desistance of self-harm (Gelinas & Wright, 2013). Finally, the results have shown the long-term and escalating nature of self-harm, as well as individuals viewing it as an addictive behaviour. This is an important finding given the potential implications on current self-harm interventions for women who have experienced ACEs, and for clinicians to recognise the

complexity of DSH and to consider viewing this behaviour within the conceptualisation of an addictive behaviour (Blasco-Fontecilla et al., 2016). It may be that hospitalised women with a history of childhood abuse have different clinical and treatment needs in terms of DSH, when compared to women without a history of childhood abuse. Given the high risk this specific population poses to themselves, and the increased prevalence of DSH and childhood abuse histories within women's inpatient services, understanding their lived experiences is of utmost importance.

Chapter 4

Critique of the Dissociative Experiences Scale

(DES and DES-II)

Introduction

This review examined a psychometric assessment tool originally developed by Carlson and Putnam (1986), known as the Dissociative Experiences Scale (DES). The scoring system was revised by Carlson and Putnam in 1993 and as such, both versions of the tool (DES and DES II) were reviewed together where relevant. Given it is the most widely used measure to assess dissociation, this review focused on its applicability to clinical and non-clinical English-speaking populations only; it has been translated into multiple languages (Carlson & Putnam, 1993). The review included an assessment of the reliability and validity of the DES and DES II.

Dissociation

Dissociation is an intrapsychic process whereby an individual experiences a disconnect or discontinuity between mental and physical processes, which can lead to them feeling disconnected from memories, personal experiences, mental processes and even sensory experiences (Van der Hart et al., 2006). In addition to this, individuals can also report feeling physically and emotionally disconnected from their surroundings (Cardeña & Carlson, 2011).

Dissociation can be non-pathological and pathological in nature. An example of non-pathological dissociation is dissociative absorption, whereby an individual becomes absorbed in imagination or an external stimulus (i.e., a book), to the extent in which they are temporarily unaware of themselves and their surroundings (Soffer-Dudek, 2019). Pathological dissociation is central to dissociative disorders (DD) and is thought to be a defence mechanism in response to surviving traumatic experiences (Van der Hart et al., 2006).

One type of DD, which includes detachment from oneself and surroundings, is depersonalisation/derealisation disorder, as described in the DSM-5 (APA, 2013).

Depersonalisation can include experiences such as feeling disconnected from one's own body and/or having a perceived distortion about oneself (APA, 2013). Derealisation refers to feeling disconnected to one's surroundings in the sense that they do not feel real or that they appear distorted in some way, this can include a distorted perception of time (APA, 2013).

Dissociative amnesia is another type of dissociative disorder and can range from a person not remembering events from a certain time (localised), complete memory loss (generalised) and even forgetting almost all personal information, which is known as dissociative fugue (APA, 2013). Lastly, the most severe dissociative disorder is dissociative identity disorder (DID), which is characterised by a disturbance of identity by two or more definite personality states and difficulty in recalling routine events. It should be noted that all DDs must be caused by a psychological mechanism as opposed to being in response to the physical effects of a substance (i.e., intoxication) (APA, 2013).

In addition to DDs, dissociative symptoms related to stress are a criterion for emotionally unstable personality disorder (EUPD), and a dissociative subtype of posttraumatic stress disorder (PTSD) was published in the DSM-5 (APA, 2013). Moreover, academic literature has demonstrated that dissociative components also contribute to the pathology of various mental disorders, such as schizophrenia (O'Driscoll et al., 2014; Panov, 2022), eating disorders (La Mela et al., 2010; Lewis et al., 2021), panic disorders (Ball, 1997; Ray et al., 2021) and affective disorders (Parlar, 2016).

Controversy about DDs spans the history of clinical and academic work within the disciplines of psychology and psychiatry. The concept of dissociation has been subjected to complex debates since its introduction to the psychiatric field by Pierre Janet in the 19th century (Hart & Horst, 1989). Such disputes are centred on whether dissociation and

dissociative related disorders are essentially psychological responses to trauma or conditions which are artefactually developed during the therapy process (i.e., traumatic memories are fantasies) and in response to beliefs, views and values which are heavily influenced by others (Loewenstein et al., 2017). Although an overview of these debates is outside of the scope of this review, it should be noted that there is virtually no academic or clinical research to support the latter view (Loewenstein, 2018).

There continues to be debate as to whether dissociation occurs on a continuum, which was one of the leading theoretical models in the understanding of dissociation (Ross, 1996). However, a taxometric analysis¹ of dissociation empirically validated the difference between a dimensional, non-pathological form and a discontinuous, pathological form of dissociation (Waller et al., 1996). The trauma model of dissociation theorises that pathological dissociation is a response to early life trauma and profound psychological adversity, such as being subjected to significant and enduring childhood abuse (Dalenberg et al., 2012; Van Der Hart, 2021).

Overview of the Tool

Purpose of the Assessment

The DES was created in response to the need for dissociative experiences to be quantified. At the time, most studies which were researching the concept of dissociation, relied on clinical judgements and historical accounts from case studies (Bernstein & Putnam, 1986). Most studies focused on the experiences of depersonalisation only (Meares & Grose, 1978; Sedman & Reed, 1963), failing to examine other dissociative type of experiences. The studies that developed their own questionnaires tended to use measures that were

¹ A form of analysis used to investigate whether a construct is better modelled as a category or dimension. (Otto et al., 2019).

dichotomous in nature, assessing whether dissociative experiences were present or not present. This is despite the consensus at the time being that dissociation occurred on a continuum (Bernstein & Putnam, 1986). Of the studies that used questionnaires to quantify depersonalisation, none of them used basic statistical analyses to ascertain the reliability and validity of the measures they developed (Bernstein & Putnam, 1986). In the 1960/70s, population samples included non-clinical groups of young adults (Dixon, 1963; Roberts, 1960), psychiatric patients (Brauer et al., 1970; Parikh et al., 1981), and individuals who had experienced life-threatening events (Noyes & Kletti, 1977). Generally, such research did not evaluate the prevalence or types of experiences across distinct diagnostic samples (Bernstein & Putnam, 1986). Therefore, the rationale for the development of the DES was to create a psychometric assessment that was both reliable and valid in the quantification of dissociative experiences. Bernstein and Putnam (1986) explained that the measure would be useful in examining the prevalence of dissociative experiences that occur in a range of psychological disorders, as well as assessing individuals for significant dissociative pathology (Putnam et al., 1986).

Description of the DES

Both the DES and DES-II are self-report questionnaires that consists of 28 items that describe common dissociative experiences. These items measure three domains of dissociative experiences: depersonalisation/derealisation, dissociative absorption and dissociative amnesia (as defined previously on page 183). It should be noted that the differences in overall scores for the two versions have been shown to be negligible (Lyssenko et al., 2018). Though both versions of the DES have been used to measure dissociation in non-clinical populations, Carlson and Putnam (1993) have ascertained that the measures were not intended to be used in non-clinical populations and those administering the tools should be mindful of this. As non-clinical individuals ordinarily score in a relatively limited range at

the lower end of the DES scale, the minor differences in scores among these individuals might not be significant (Carlson & Putnam, 1993). That said, both versions of the DES have been used with adults in the clinical and non-clinical population for treatment and research purposes.

The only formal differences between versions I and II of the DES are purely linked to a change in scoring system. The original DES asked test users to mark with a pen on a 100-mm line, approximating the percentage of time that they experienced a specific form of dissociation. The score for each item is then calculated by the marks to the nearest 5-mm point (e.g., 0mm, 5mm, 10mm, etc.). Due to criticism received regarding the user-unfriendly nature of the scoring system, a second version of the DES was developed and titled the DES-II (Carlson & Putnam, 1993).

In the second version, an 11-point Likert scale is used, and the respondent is instructed to circle a number for each item that best demonstrates the percentage of time they undergo the dissociative experience (from 0% to 100%). An example of an item is “Some people have the experience of looking in a mirror and not recognizing themselves. Circle a number to show what percentage of the time this happens to you.” (Carlson and Putnam, 1993). For both versions, the overall DES score is the average of all the scores. There is a manual for the administration of both versions of the DES, with it stating that high levels of dissociation are signified by average overall scores of 30 or more, whereas scores below 30 suggest low levels of dissociation. However, the DES was not designed as a diagnostic tool and therefore, individuals who are pursuing a diagnostic tool should contemplate using a diagnostic interview for DDs, should the individual score 30 or above on the screening instrument (Carlson & Putnam, 1992). The three distinct subscales of the DES and DES-II can be useful in evaluating different subtypes of respondents’ dissociative experiences,

particularly to inform clinical treatment (Bernstein & Putnam, 1993). See Table 10 for a breakdown of subscale definitions and relevant items.

Table 10

DES (I and II) subscales (Bernstein & Putnam, 1993)

Subscale	Definition (taken from the assessment)	Relevant questionnaire items
Amnesic Dissociation	This factor measures memory loss. For example, the respondent not knowing how they got to a place, or finding items among their belongings that they do not remember buying etc.	Items 3, 4, 5, 6, 8, 10, 25, and 26
Depersonalization /Derealization	Depersonalization: distinguished by the chronic experience of feeling detached from one's own body, psychological processes or a sense of not feeling real. Derealization: characterised by feeling a detachment from reality in relation to the immediate surroundings. This can include feeling that other individuals, items and the environment around them is not real.	Items 7, 11, 12, 13, 27, and 28
Absorption	Absorption refers to being so preoccupied by something that you are distracted from what is going on around you. An example includes,	Items 2, 14, 15, 16, 17, 18, 20, 22, and 23

sitting, staring into space and being unaware of
the time passing.

Appropriate Use of the DES

The DES and DES-II were designed for its use with adults and therefore, the language used, and the experiences described may not be appropriate for children and adolescents. As a result, a youth version of the DES was also developed and is known as the Adolescent Dissociative Experiences Scale (A-DES; Armstrong et al., 1990). This measure was created for its application in the adolescent population and has shown good scale ($\alpha = 0.93, p < 0.05$) and subscale reliability (amnesia scale, $\alpha = 0.85$; absorption scale, $\alpha = 0.72$, and depersonalization/derealization, $\alpha = 0.82$) (Armstrong et al., 1990). Both versions of the DES have been translated into many languages and have been used in many countries: Mandarin (Olen Kleindorfer, 2006); Dutch (Ensink & Otterloo Van, 1989); Finnish (Maaranen et al., 2008), French (Darves-bornoz et al., 1999), Japanese (Umesue et al., 1996), Polish (Pietkiewicz et al., 2019), South Korean (Hyun Young et al., 2015), and Italian (Schimmenti, 2016). The DES has also been translated into Khmer language to assess levels of dissociation in Cambodian refugees residing in the United States (Carlson & Rosser-Hogan, 1991). Although both versions of the DES are widely used across the globe, this review focused on the adult English versions of the DES and DES-II.

Theoretical Model

The DES was developed based on the notion that dissociation occurs on a continuum, from non-pathological to pathological forms. Towards the lower end of the dissociative continuum are experiences considered non-pathological in nature, describing experiences such as dissociative absorption. An example of this is when an individual becomes absorbed

in imagination or an external stimulus to the extent in which they are temporarily unaware of themselves and their surroundings (Soffer-Dudek, 2019). Towards the other end of the dissociative continuum will be the more severe dissociative pathology such as dissociative identity disorder (DID). The idea that dissociative experiences occur on a continuum (from minor experiences to major psychopathology) is a concept that was pioneered by the work of Pierre Janet in the 19th century, who is also the person who first created the term *dissociation* (Hart & Horst, 1989).

Bernstein and Putnam (1986) highlighted that different research papers and theorists are more implicit or explicit in their belief that dissociation occurs on a continuum. However, they acknowledged that most definitions of dissociation are predominantly concerned with differentiating between normal and abnormal dissociative experiences. What academics and clinicians have considered to be abnormal experiences of dissociation has changed over the years. For instance, Janet (1889) maintained that the occurrence of amnesia which shielded dissociated material from consciousness was the essential distinctive feature of pathological dissociation (White & Shevach, 1942). Whereas colleagues of Janet elected to diminish the concept of amnesia and focused on the concept of *coconsciousness* (the concurrent but distinct presence of two streams of consciousness) as the crucial pathological element of dissociation (Prince, 1909). In contemporary psychology, academics emphasised that pathological dissociative experiences are distinguished by the disturbance of a person's sense of identity and memories (Nemiah, 1980). During the time in which the DES was developed, the DSM had published its third version (APA, 1980) and such explanations of pathological dissociation were exhibited in the diagnoses of psychogenic amnesia (now known as dissociative amnesia), psychogenic fugue (now known as dissociative fugue) and multiple personality disorder (now known as dissociative identity disorder). The format of the DES

reflected the more contemporary ideas surrounding pathological dissociation and dissociation occurring on a continuum.

Development of the Scale

Bernstein and Putnam (1986) reported that they chose a self-report design for cost-effective reasons, as well as it being easier to administer to large numbers of people. They highlighted that self-report measures remove the issue of interviewer bias and the need for interrater reliability to counteract this. Their rationale for implementing a visual analogue response scale was to prevent preconceived categories from influencing the test users' responses (Osborne & Clarke, 1975). Individual questions were established from data gained from interviewing people who met the DSM-III criteria for various DDs, as well as discussions with clinicians who specialised in the treatment of DDs. Scale items were all relevant to experiences in identity disturbance, memory, awareness, depersonalisation/derealisation; in addition to questions which assessed less pathological experiences of dissociation such as *déjà vu* and absorption (Nemiah, 1980). The scale omitted any questions which assessed changes in affect and impulsivity to avoid any confusion with dissociative experiences which could be accounted for by mood disorders.

Pilot testing was performed with two initial versions of the scale, which were trialled on individuals with schizophrenia and a control group (those without a mental illness). During his phase of scale development, questions were revised to allow for a better understanding. Feedback regarding the two different versions of the scale was obtained from expert clinicians treating DDs and contributed to the final 28-itemed scale (Bernstein & Putnam, 1986). The instructions for the DES informed test users that the questions only apply to experiences that are not related to drug or alcohol consumption, as physiological responses to being intoxicated may be incorrectly interpreted as dissociative experiences.

Characteristics of the Assessment

The DES is a self-report psychometric assessment, which the respondent can complete by themselves or in the presence of a clinician. Some advantages of self-report assessments are that they are inexpensive and simple to administer. They can also be distributed widely to large populations, including hard-to-reach populations (Krosnick & Presser, 2010). They can be completed anonymously, therefore, increasing the chances of individuals completing assessments that are gathering sensitive data for research purposes (Warner et al., 2011). Nevertheless, self-report assessments also have several limitations which includes the increased risk that those completing the assessments can be dishonest and exaggerate or minimise symptoms or behaviours in an attempt to manipulate a desired outcome. Furthermore, inaccurate responses may be unintentional, if respondents are unable to assess themselves objectively (John & Robins, 1994). Difficulties in understanding, or the misinterpretation of questions, could also lead to invalid responses, particularly if a clinician or researcher is not present to help clarify any questions or confusion. Self-report assessments typically use a Likert scale, as is the case with the DES I and II, which increases the risk of subjective bias. For instance, one respondent's interpretation of 80% of time spent in a particular dissociative experience may be different from another respondent's interpretation of a similar experience (Krosnick & Presser, 2010).

Reliability

Reliability refers to the consistency of a measure and the estimated reliability of tools can be attained using different methods (Heale & Twycross, 2015). Internal reliability using Cronbach's Alpha and the assessment of stability using test-retest reliability are reported below.

Internal Reliability

Cronbach's Alpha. Internal reliability of a psychometric assessment determines whether items that propose to measure a general construct yield comparable scores (Streiner, 2003). Cronbach's α is the most common test used to ascertain the internal consistency of a measure. In this method, the average of every correlation in all combinations of split-halves is established. The Cronbach's α result is a number between 0 and 1, with an acceptable reliability score being 0.7 or higher (Lobiondo-Wood & Haber, 2013). The developers of the DES and DES-II did not determine Cronbach's α , however, it has since been determined in papers by other authors. All research papers sourced and reviewed for the purpose of this chapter reported excellent internal consistency (see Table 11).

Table 11

Cronbach's α results from reviewed studies.

Author	DES version	N	α	<i>P</i>
Bruce et al., (2007)	DES	1040	.91	Not reported
Frischholz et al. (1990)	DES	321	.95	<.0001
Patihis and Lynn (2017)	DES-II	Session 1: 314	Session 1: .94	Session 1: < .001
		Session 2: 313	Session 2: .95	Session 2: < .001
Zingrone and Alvarado (2002)	DES	308	.92	Not reported

Bruce et al. (2007) administered the DES to 1,040 undergraduate students from a large American university (54% female, 46% male; $M_{\text{age}} = 18.8$, $SD = .82$). Ethnicity and other demographic information were not recorded. The alpha coefficient for this population was excellent ($\alpha = .91$). Similarly, Patihis and Lynn (2017) administered the DES-II to undergraduate students at an American University. Of the total participants for the study ($n = 602$) the sample age ranged from 18 to 56 years ($M_{\text{age}} = 20.6$, $SD = 3.37$), with 84.2% of the sample being female. The main groups of self-identified ethnicity were 38.2% Asian, 36.0% Hispanic or Latino, and 15.3% White. Participants completed the DES-II twice, one week apart, and on both occasions the alpha coefficient was considered excellent ($\alpha = .94$ and $.95$ respectively). Therefore, it appears that the DES-II demonstrates excellent internal consistency amongst the American student population. Furthermore, Zingrone and Alvarado (2002) administered the DES to 308 American college students. Sixty percent of the participants were female, 79% were single, and 93% were white. Participant's ages ranged from 17 to 59 years ($\text{Mean} = 23$, $SD = 8.27$). Again, the Cronbach's Alpha for this study demonstrated excellent internal consistency within the American college population.

Frischholz et al. (1990) analysed DES data from a population of 62 inpatients at a dissociative disorder's unit and 259 American college students. The alpha for the combined total sample of patients and students ($N = 321$) was $\alpha = .95$ (as displayed in Table 11). The authors also determined the Cronbach's α for different groups of participants, which included an alpha coefficient of $.94$ for the DES scores of those meeting the DSM- 5 (APA, 2013) criteria of dissociative identity disorder ($n = 33$); $\alpha = .94$ for the DES scores of those meeting the criteria for dissociative disorder not otherwise specified ($n = 29$), and lastly, $\alpha = .93$ for the student DES scores. As such, the DES demonstrates excellent internal consistency in an American non-clinical population (i.e., students) and the clinical population of inpatients with dissociative disorders. Lastly, a meta-analysis on the use of the DES

(VanIjzendoorn & Schüngel, 1996), across different samples, demonstrated a mean Cronbach's alpha of 0.93 in 16 studies, supporting its excellent internal consistency.

Test-retest Reliability. Test-retest reliability is the consistency of the scoring of an instrument over time and is assessed when a measure is given to the same participant on more than one occasion and under comparable conditions (Collins, 2017). A statistical comparison is then made between the respondent's test scores across the times they were administered it, to assess the similarity of the scores (Heale & Twycross, 2015). The closer both scores are, the more reliable the test is (Kline, 2000). Correlation coefficients in the higher levels of 0.70's should be achieved when assessing test re-test reliability (Streiner et al., 2008). Several different researchers have assessed the test-retest reliability of the DES and DES-II, including the developers of the DES (see Table 12).

Table 12

Test-retest reliability scores

Author	DES version	N	R	p	Test/retest interval
Bernstein & Putnam (1986)	DES	26	.84	<.0001	4 to 8 weeks
Frischholz et al. (1990)	DES	30	.96	<.0001	4 weeks
Pitblado & Sanders (1991)	DES	46	.79	<.0001	6 to 8 weeks
Patihis & Lynn (2017)	DES-II	161	.80	< .001	1 week

Sanders (1992)	DES	Condition 1: 46	Condition 1: 0.79	Condition 1: Does not report	Condition 1: 6-8 weeks
		Condition 2: 16	Condition 2: 0.90	Condition 2: Does not report	Condition 2: 11 weeks
Putnam, Chu & Dill (1992)	DES	83	0.78	Does not report	1 year

In their original paper, Bernstein and Putnam (1986) administered the DES to 31 undergraduate college students (18-22 years old), 34 normative adults, 14 people who were alcohol dependent, 24 phobic-anxious patients, 10 individuals with PTSD, 20 patients with schizophrenia, and 20 patients with DID. These participants were specifically chosen to assess dissociative experiences within these clinical and non-clinical populations. The study showed good test-retest reliability ($r = .84$), however, the coefficient is based on a relatively small sample ($n = 26$) in comparison to the overall number of participants, who completed the DES ($N = 153$) and the authors did not state which subpopulation this was based on. Lastly, it does not seem appropriate to be conducting the DES on alcohol dependent participants, when one of the criteria for assessing DDs, is that dissociative experiences cannot be attributed to physiological responses to substances.

Frischholz et al. (1990) administered the DES to a clinical and non-clinical population (see previous description of sample on page 183) and they demonstrated very good test-retest reliability ($r = .96$). Pitblado and Sanders's (1991 study) (as cited in Carlson & Putnam, 1993) reported a slightly lower test-rest reliability coefficient ($r = .79$) on a population of American college students. This study was presented at a conference on dissociative states and unfortunately, the author of this review was unable to locate the original study to report further details. However, Carlson & Putnam (1993) report that the decreased level of

reliability reported by Pitblado and Sanders (1991), likely indicates the homogeneity of their sample population as a limitation of variety in scores will lead to a reduced correlation coefficient.

Patihis and Lynn (2017) administered the DES-II to American college students (demographics of population previously reported on page 193) and demonstrated good test-retest reliability ($r = .80$). Test-retest reliability conducted by Sanders (1991) on a population of American college students established good reliability in both conditions. The reliability was lower in the first condition of testing 46 students ($r = .79$) 6 to 8 weeks apart, although was higher in the second condition ($r = 0.90$) where 16 students were tested 11 weeks apart. Lastly, Putnam et al. (1992) demonstrated that the DES is relatively stable across a one-year time span, when they tested the psychometric properties of the DES on a population of mothers ($N = 83$) ($r = 0.78$). Overall, research has demonstrated that the DES (I and II) has good test-retest reliability across clinical and non-clinical populations, meaning they maintain consistent results across populations.

Validity

Validity of an assessment refers to the extent to which a concept is accurately measured (Heale & Twycross, 2015). Different types of validity are discussed below in relation to the DES.

Construct Validity

Convergent Validity. Convergence validity measures whether instruments assessing the same/a similar construct are highly correlated or not, to establish the psychometric rigour of a tool (Chin & Yao, 2014).

In their meta-analysis (Van IJzendoorn & Schuengel, 1996), when establishing convergent validity across studies in alike fields (e.g., studies on dissociative identity

disorder), combined effect sizes were calculated. Results were compared to Cohen's (1988) criteria for a weak ($d = 0.20$), medium ($d = 0.50$), and strong ($d = 0.80$) effect size. See Table 13 for the relation between the DES and similar psychometric measures.

Table 13

Convergent validity of DES (Van IJzendoorn & Schuengel, 1996)

Alternative measure	Number of studies	N	R	Cohen's d	p
Perceptual Alteration Scale (PAS; Sanders, 1986)	7	1627	0.63	1.64	0.0000
Tellegen Absorption Scale (TAS; Tellegen & Atkinson, 1974)	6	1421	0.54	1.30	0.0000
The Questionnaire of Experiences of Dissociation (QED; Riley, 1988)	4	1903	0.80	2.68	0.0000
The Bliss-scale (Wogan, 1995)	2	355	0.53	1.24	1.28 E-22
The Dissociation Scale of the Trauma Symptom Checklist (TSC-40-DIS; Gleaves & Eberenz, 1995)	1	125	0.73	2.14	6.13 E -20
Structured Clinical Interview for DSM-IIT-R Dissociative	2	117	0.76	2.33	1.51 E -19

Disorders (SCID-D;
Steinberg, 1994)

The Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989)	3	137	0.68	1.83	1.29 E -14
Peri-traumatic Dissociative Experiences Questionnaire (PDEQ; Marmar et al., 1994)	1	231	0.41	0.90	6.86 E-11

Please note the E numbers in the P value column represents scientific notation used for extremely small values. This means the decimal moves to the left the number of places noted after the E number.

The DES demonstrated excellent convergent validity with other psychometric assessments and interviews which measure dissociation (combined effect size: $d = 1.82$; $N = 5,916$). Interestingly, the association between the DES and interview schedules (exact interviews not detailed) appeared to be stronger than the association between the DES and similar questionnaires ($d = 2.05$ and $d = 1.81$ retrospectively; $p = 0.003$, for the difference). As shown above, the DES was only moderately associated with the PDEQ (1994), however, this may be a result of the PDEQ (1994) not measuring lifetime dissociation, whereas the DES is measuring lifelong dissociation.

Criterion Validity. Criterion validity refers to how accurately the measurement of one variable can predict the outcome of another variable (Salkind, 2010). Predictive and concurrent validity are different types of criterion validity.

Predictive Validity. Predictive validity is a form of criterion validity which indicates how accurately the measurement of one variable can predict a future outcome (Lin & Yao, 2014). A meta-analysis conducted to test the psychometric properties of the DES (Van

Ijzendoorn & Schuengel, 1996) demonstrated that it had impressive predictive validity. This was especially true concerning dissociative disorders (DID: $d = 1.05$; $N = 1,705$) and traumatic experiences (PTSD: $d = 0.75$; $N = 1,099$; and abuse: $d = 0.52$; $N = 2,108$).

Concurrent Validity. In terms of concurrent validity, in a large multicentre study by Carlson and Putnam (1993), using a sample of $N = 1051$, a cut off score was used to classify subjects from a psychiatric sample as having DID or not having DID (as based on the DSM-III diagnostic criteria at the time). The analysis produced a sensitivity rate (proportion of DID subjects correctly identified) of 74% and a specificity rate (proportion of not-DID subjects correctly identified) of 80% (Carlson & Putnam, 1993). Carlson and Putnam (1993) argued that since psychiatric diagnosis can at times be unreliable, this may have impacted the reliability of their findings.

Structural Validity

A limitation of the DES, is the questionable structural validity, as there have been inconsistent results in relation to its factorial structure. The results of a study with 1574 college students by Carlson and colleagues (1991) indicated three fundamental subtypes of dissociation: amnesic dissociation, absorption/imaginative involvement, and derealisation/depersonalization (Carlson et al., 1991). While similar results have been reproduced by other researchers (Sanders & Green, 1994; Schwartz & Frischholz, 1991) other studies have proposed the presence of various additional factors, such as ‘denial’ and ‘different selves’ (Ray et al., 1992, p.421). Contrastingly, Fischer and Elnitsky (1990) performed a factor analysis of the DES in a non-clinical population ($n = 507$) and discovered only one dissociative subtype was reliable and valid. Lastly, one study re-analysed the original data from the study carried out by Carlson and colleagues (1991) and found only one

factor when they controlled for skewness from the data (Waller, 1995). As a result, overall DES scores are deemed the most reliable measure, as opposed to subscale scores.

Use in Research and Clinical Settings

Normative Data

For researchers and clinicians to interpret and compare an individual's score on the DES, they need to be aware of scores for the normative sample. This is of particular importance when assessing complexities within a clinical population, to determine whether a score is different to the 'norm' (Kline, 2000). Positively, normative data from clinical and non-clinical populations are well documented. Please see Table 14 below for a breakdown of normative data (extracted directly from a meta-analysis conducted by van IJzendoorn & Schuengel, 1996).

Table 14

Normative data

Population	Number of studies	<i>N</i>	<i>M</i>	SD
General population	7	1458	11.6	10.6
Anxiety disorders	3	407	10.3	10.0
Eating disorders	6	203	14.8	11.5
Schizophrenia	1	20	17.1	15.3
Student/adolescent	18	4867	14.3	14.3
General psychiatric patient	14	1174	16.7	16.4
Abuse history	2	141	29.2	21
Personality Disorders	5	349	19.6	16.2

PTSD	4	121	32	19.2
DDNOS	3	64	39.5	15.8
DID	12	355	44.6	20.3

**PTSD = Post-traumatic stress disorder; DDNOS = Dissociative Disorder Not Otherwise Specified and DID = Dissociative Identity Disorder.*

As can be seen in table 14, the mean DES scores for different clinical population subgroups are based on more studies (e.g, DID) than others (e.g., schizophrenia), and therefore, those comparing normative data should be mindful of this.

Use in Research and Clinical Practice

Overall, the DES is mostly used to assess dissociation in clinical populations. When used in a non-clinical population, difficulties occur because the resulting scores can exhibit significant floor effects and often are highly skewed (Loftus & Wright, 1999). Therefore, those using the DES in the general population should be mindful of this. That said, the administration of the DES I and II has greatly influenced clinicians' and academics' knowledge of the concept of dissociation. It has also had significant theoretical implications as the DES has produced robust experiential data in relation to the trauma model of dissociation, which suggests that DDs are related to childhood and significant relational trauma (Dalenberg et al., 2012, 2014). The development of the DES has also been vital in assessing the effectiveness of trauma treatment, particularly for those with established DDs (Brand et al., 2009, 2014). Use of the DES has also demonstrated an association between dissociation and abnormal personality functioning, including emotionally unstable personality disorder (EUPD) (Zanarini et al., 2004).

The DES and DES-II have been used in a range of research studies ($N > 2,000$), with different research aims. Initially, both versions of the DES were used to determine the

prevalence of dissociation in samples of patients with a variety of psychiatric diagnoses. A recent meta-analysis was conducted by Lyssenko et al. (2018), to investigate the prevalence and distribution of dissociation as assessed by both versions of the DES. Similarly, to the current review, the authors decided to include studies using both versions of the DES given their similarity. Lyssenko et al. (2018) screened more than 1,900 original publications, with 216 studies being included in the meta-analysis, comprising of $N = 15,219$ across 19 diagnostic categories. Unsurprisingly, they found the highest dissociation scores amongst those with dissociative identity disorders, with a mean DES score of 48.7 (95% CI = 46.4, 50.9), based on 29 publications with a combined sample size of 1,313 patients. Dissociation scores were second highest amongst those with PTSD, with a mean DES score of 28.6 (95% CI = 25.6, 31.5), based on 33 publications with a combined sample size of 2,106 patients. Dissociation scores were third largest for those with EUPD, with a mean DES score of 27.9 (95% CI=25.3, 30.6), based on 27 publications and a combined sample of 1,705 patients. Dissociation scores for other mental disorders were captured for somatic symptom disorder ($M = 18.8$), eating disorders ($M = 18.6$), schizophrenia ($M = 17.8$), obsessive compulsive disorder (OCD; $M = 15.3$), depressive disorders ($M = 15.3$) and anxiety related disorders ($M = 15.2$). Thus, the DES (I and II) has been utilised in various research studies investigating prevalence of dissociative experiences within different diagnostic groups.

Secondly, both versions of the DES have been used to assess levels of dissociation in general populations (Humpston et al., 2016; Ross et al., 1990) and university students (Sandberg & Lynn, 1992; Sanders & Giolas, 1991). Thirdly, the DES and DES-II have also been used to examine the relationship between dissociation and other precise clinical features in medical populations (Carlson & Putnam, 1993). Some examples of precise clinical features include levels of dissociation being examined in relation to suicidality and non-suicidal self-harm (Calati et al., 2017), aggression (Kaplan et al., 1998), somatisation

(Badura et al., 1997), and substance use (Najavits & Walsh, 2012). The scale has been used to assess the relationship between dissociative experiences and childhood maltreatment, for instance, emotional, sexual and physical abuse (Sar et al., 2009; Vonderlin et al., 2018).

Lastly, the DES has been commonly used in the assessment of possible mediating factors in the relationship between childhood abuse and later onset of self-harm. Given that dissociation is a common response for individuals who have survived traumatic experiences, the use of the DES has been a well-established tool in research studying this area. For instance, in Chapter 2, eleven studies examined the role of dissociation in the relationship between adverse childhood experiences (ACEs) and NSSI. Six of these studies used the DES (Bernstein & Putnam, 1986) to measure dissociative symptoms (Bolen et al., 2013; Franzke et al., 2015; Howard et al., 2017; Lev-Wiesel & Zohar, 2014; Low et al., 2000; Talmon & Gingzburg, 2018). Whereas, Swannell and colleagues (2012) only used the depersonalisation/derealisation subscales, and two studies (Bikmazer et al., 2022; Chaplo et al., 2015) used the adolescent version of the DES (A-DES; Armstrong et al., 1997). This emphasises how well-established this tool is in the use of research, as well as clinically.

Conclusion

The development of the DES was underpinned by psychological theory and based on the notion that dissociation exists on a continuum. Studies show that both versions of the DES (I and II) have good psychometric properties, with it being a reliable and valid measure overall. It has demonstrated sound internal consistency and impressive convergent validity. Some concerns have been raised regarding the factorial structure of the DES, and as such, it would prove more reliable to use the overall DES score as opposed to subscale scores. Furthermore, floor effects and skewed data have been acknowledged in the use of the DES in non-clinical populations. Overall, the DES and DES-II have provided an invaluable aid in quantifying dissociation in various populations, which is reflected in its large and varied research base.

Chapter 5

General Discussion and Thesis Conclusion

Aims of Thesis

This thesis aimed to add to the literature on risk factors for NSSI in those with ACEs, as well as offer insights into the experiences of those who self-harm with a history of childhood abuse. More specifically, chapter 2 aimed to look at risk factors for self-harm in a high-risk population of those who have experienced ACEs. Previous literature has tended to focus on risk factors for self-harm generally. Academic literature has also focused on mechanisms which may explain the ACE-NSSI link, and there is a growing body of literature investigating risk factors for NSSI within this population. To date, however, there have been no previous reviews which synthesised this literature. This is deemed crucial for identifying risk and, by extension, protective factors for NSSI in a vulnerable group of individuals who have experienced ACEs.

Another aim of the thesis was to understand and gain insights into the lived experiences of hospitalised women who self-harm and who are survivors of childhood abuse. This aim was addressed through conducting in-depth interviews with a sample from this population. Such insights are instrumental in providing tailored interventions and support for these women.

Lastly, as research has found dissociation to be an important concept in the ACE-NSSI relationship, and Chapter 2 also highlighted this to be a risk factor for self-harm in those with ACEs, a critical evaluation of the Dissociative Experiences Scale (Putnam & Carlson, 1993) was carried out. The DES-II is a widely used instrument for assessing dissociative experiences in both clinical and non-clinical populations around the world.

Discussion of Main Findings

Chapter 2

The systematic review identified several risk factors for self-harm in the population of those with ACEs. Fifty-five papers were included which all contained various interpersonal and intrapersonal risk factors. The review highlighted that PTSD symptoms, dissociation and emotion dysregulation (ED) could all be considered risk factors for self-harm in this population. Seven studies examined the role of post-traumatic stress symptoms (PTSS) in the ACE-NSSI relationship and found that PTSS played a significant role in this relationship. In one study, statistically higher levels of PTSS were observed in survivors of CSA and who carry out NSSI. Three studies found that PTSS accounted for a proportion of the ACE-NSSI relationship, with two studies concluding that specific PTSS subtypes also contribute to this relationship. Therefore, PTSS can be considered a risk factor for NSSI in the those with ACEs.

Ten studies found that dissociation was a factor in explaining the onset of NSSI in individuals with ACEs. One study found dissociation did not play a major role in the NSSI-ACE relationship, however, they measured childhood maltreatment as an overall construct which may have affected the outcome. Also, this study was assessed as having a methodological quality of 65%, which was one of the lower scoring studies included in the review. Only one study found that dissociation did not mediate the relationship at all. As the occurrence of dissociation may increase the risk of NSSI in those with ACEs, dissociative symptoms can be considered a risk factor for self-harm among individuals with ACEs.

Ten studies investigated the role of ED in the ACEs-NSSI relationship, with three papers finding that ED did not independently contribute to the relationship, and seven papers demonstrating that ED had contributed to the relationship to some extent. Considering the

effect found, ED can be considered a risk factor for NSSI in the clinical adolescent and adult general populations. However, two of the three papers which did not find a mediating effect of ED studied forensic populations, thus, further research is needed within this population.

Chapter 3

Chapter 3 is the first known study in the literature on ACEs and self-harm to explore the lived experiences of hospitalised women who self-harm and who have a history of childhood abuse. Two components were explored, firstly how hospitalised women with a history of childhood abuse made sense of their experiences of self-harm and secondly, from their perspective, what factors affected their engagement in self-harming behaviours, focusing on what they felt had caused them to self-harm on some occasions but not on others.

Analysis of transcripts led to the emergence of three group experiential themes (GETs): *Journey of self-harm*; *Reasons why I self-harm*; and *Relationships and self-harm*. Each GET comprised of several subthemes. The GETs and sub-themes demonstrated a progressive trajectory of self-harm, with the participants speaking of their experiences which led to the onset of self-harm, reasons why they self-harm, as well as factors which help them not to act on self-harm urges and to recover from self-harming behaviour.

In terms of understanding the participants' lived experiences, in the GET *Journey of Self-harm*, participants spoke about the journey of self-harm which each participant experienced throughout their lives. The first sub-theme *Self-harm just got worse* highlighted the escalating nature of three participants' engagement in self-harm. They spoke collectively about how their self-harm began with engaging in what they perceived to be minor self-harm, however, with time their DSH worsened in terms of frequency and severity. They communicated some insight into the fact that their self-harm became more unmanageable. These results mirrored those of a qualitative study (Rouski et al., 2020), who explored the

experiences of adolescents in residential care. One emergent theme was *The black hole of self-harm*, where adolescents spoke about not predicting the likelihood that self-harm would escalate and they would feel powerless to cease using it as a coping strategy.

The second sub-theme *Comparisons to substance addiction*, highlighted the significance of language used by participants, and their comparisons of DSH to addictive behaviours, such as the use of substances. Two of the participants viewed living with DSH behaviours, like those learning to live with substance addiction. This supports research which has reported that the psychological and physical states prior to self-harm, appear to mirror withdrawal symptoms reported by individuals with substance addiction (Faye, 1995; Washburn et al., 2010). A literature review carried out by Blasco-Fontecilla et al. (2016), reported that DSH behaviour is better recognised in the context of an addictive behaviour, and treatment interventions for DSH should acknowledge this.

The GET *Reasons why I self-harm* best portrayed the factors which can cause participants to be more prone to carry out DSH. Within this lay four sub-themes: *Self-harms when emotions get too much*, *Self-harm to punish myself*, *Self-harm to feel in power/control* and *I self-harm to feel something*. The sub-theme *Self-harms when emotions get too much* captured the role that self-harm plays in weakening intense and unpleasant emotions for three participants. The relationship between DSH and emotional dysregulation is well documented within research, with a meta-analysis highlighting a significant relationship between emotion dysregulation and DSH (Wolff et al., 2019).

The second sub-theme *Self-harm to punish myself* portrayed the relationship between the trauma participants experienced in childhood and DSH as a form of self-punishment. Five out of the six participants contributed to this sub-theme. These findings are like those of a qualitative study (Stänicke, 2021), which studied the lived experiences of a clinical sample of adolescent girls in Norway who DSH. From the data emerged a GET labelled *The punished*

self – I deserve it where participants described self-harming as a way of punishing the body, instead of projecting their anger towards others (Stănicke, 2021).

Two participants contributed to the third sub-theme *Self-harm to feel in control*, which described engaging in self-harm to feel in control, when they felt as if they had little control over their lives. The individuals described self-harming as a way of inflicting abuse upon themselves, so that no-one else had the ultimate power to hurt them. In terms of the last sub-theme *I self-harm to feel something*, three participants described engaging in DSH to feel something, in response to enduring feelings of “emptiness” and “numbness.” Given all participants were survivors of sexual trauma in childhood, in addition to other forms of adverse experiences, it is likely they also experienced dissociative symptoms. This notion is supported by a meta-analysis (Vonderlin et al., 2018), which found higher levels of dissociative symptoms in individuals with a history of childhood abuse, with the greatest levels of dissociation associated with CSA.

With regards to factors which help reduce the chances of participants engaging in DSH, the GET *Relationships and self-harm* and the sub-theme *The importance of relationships in stopping self-harm*, best depicted the role of positive social support in the decrease of self-harm. In this sub-theme, four participants described how different relationships, such as those with friends, professionals, family, and romantic relationships, had led to them resisting self-harm urges. This supports results of a qualitative study which found participants viewed personal support as a protective factor for DSH (Caufield, 2014).

The findings from Chapter 3 add further support to the findings of Chapter 2, which suggested that dissociative symptoms and problems with ED in clinical populations may be risk factors for self-harm.

Chapter 4

The DES-II was examined due to its relevance in assessing dissociative symptoms in clinical and non-clinical populations. The critique concluded that the DES (I and II) has good psychometric properties, with it being a reliable and valid measure overall. The measure provides a helpful tool in quantifying dissociation in various populations, which is demonstrated in its substantial and diverse research base. It has consistently exhibited sound internal consistency and remarkable convergent validity. Some issues have been highlighted in relation to the factorial structure of the DES and as such, it is recommended to use the overall DES score, instead of subscale scores, to assess for presence of dissociation.

Thesis Strengths and Limitations

This thesis contributes to the emerging literature on risk factors for self-harm in a vulnerable population of those who have experienced ACEs. Chapter 3 is the first known study to offer an in-depth examination of the lived experiences of a clinical population of women with a history of childhood abuse, who are hospitalised and who self-harm. This study was undertaken with an English based group of detained women, a sample which is challenging to access from a researcher's point of view, given they are a highly vulnerable population. Furthermore, the women who took part in the study shed light on the reasons why they engage in self-harm, as well as factors which reduce the chances of them self-harming. Thus, it adds to the literature trying to establish factors which increase and decrease individuals' engagement in self-harm; a maladaptive behaviour which is considered a global public health concern.

One strength of the qualitative study is that it used an IPA design, leading to a comprehensive analysis of participants' personal sense-making of their experiences of self-

harm, and the role personal support plays within this. Another strength of the study is the homogeneity of the sample, with all participants having experienced childhood sexual abuse, which again, is a difficult to reach population to study.

Limitations of the qualitative study are also considered. With regards to this research methodology, researcher interpretation is required and is an essential part of IPA and as such, findings may have been subjected to researcher and interpretive biases (Smith et al., 2009). As a British female without a history of ACEs and self-harm, this will likely have influenced the interpretation of the data. However, the researcher was mindful of this and actions were taken to minimise such potential limitations throughout the research process, such as utilising academic supervision, keeping a reflective diary and writing a reflexivity statement.

Implications for Practice

Chapter 2 showed that PTSD symptoms, ED, and dissociation are potential risk factors for NSSI, specifically for those with a history of ACEs. Therefore, those with a history of ACEs are more likely to engage in NSSI if they are also experiencing PTSD symptoms, dissociation and/or are having problems with emotion dysregulation (ED). Thus, when working with individuals with ACEs and when assessing for future risk of NSSI, the aforementioned factors should be screened for and prioritised in treatment.

Furthermore, to aid the prevention of NSSI, it would be beneficial to screen children and adolescents with a history of ACEs (particularly childhood abuse) for the occurrence of possible PTSD symptoms, dissociation and ED. The rationale being they are more likely to go on to engage in self-harm compared to a population of those without ACEs/childhood abuse. Although this may be difficult to implement on a larger scale, it may be beneficial to include such practices in those individuals who have been identified as having survived multiple ACEs and/or childhood abuse within schools, social care, or mental health services.

This could be done by a way of administering valid and reliable tools to measure PTSD symptoms, ED and dissociation in children/adolescents who have been flagged as vulnerable or having a history of ACEs in these settings. For instance, Chapter 3 highlights how the A-DES was created for its application in the adolescent population and is a reliable tool (Armstrong et al., 1990). Therefore, this appears to be a useful measure to use in the screening process.

Following the screening of the aforementioned factors (PTSD, ED and dissociation), should any of the children/adolescents be displaying concerns in these areas, they could be referred to interventions that help them understand, manage and cope with any experiences of PTSD, ED and dissociation. Thus, reducing the likelihood of them going on to engage in NSSI as an alternative way of coping.

The findings also have implications for those treating individuals who engage in NSSI with a history of ACEs. General treatment approaches to NSSI such as Dialectical Behaviour Therapy (Linehan, 1993) may not be as effective in the prevention of NSSI, until symptoms of PTSD and dissociation are also recognised and addressed. This suggestion is supported by the best practice guidance on treating Complex PTSD (UKPTS, 2016) which recommends that individuals engage in trauma symptom management (i.e., grounding techniques for re-experiencing symptoms and dissociation) before engaging in skills building interventions such as DBT. Moreover, individuals with a history of trauma who require treatment for difficulties such as NSSI, may require adapted DBT interventions which target both NSSI and PTSD symptoms concurrently, such as DBT for PTSD (DBT-PTSD). This specific intervention has been shown to be effective in treating these co-occurring areas (Steil et al., 2018).

The treatment needs of those who engage in NSSI with a history of ACEs may be different to those without a history of ACEs and therefore, population specific treatment interventions may need to be developed for this high-risk population. Overall, reducing PTSD related symptoms may lead to a reduction in NSSI behaviours as the urges to self-regulate emotions or interrupt dissociative episodes through NSSI may no longer be necessary. It is acknowledged that dissociation is considered a psychological defence mechanism which is a neuropsychological response to protect a person at times of significant stress, however, this can become a maladaptive and unhelpful coping strategy as time goes on. Therefore, it is important for individuals to learn other ways of coping with extreme psychological distress, as well as developing skills to manage periods of dissociation, as well as PTSD symptoms. This could include engaging in trauma related interventions such as mindfulness (Kelly & Garland, 2016), Trauma Recovery and Empowerment Model (Mason-Moyer et al., 2020), Cognitive Behaviour Therapy (Wieferink et al., 2017), Cognitive Processing Therapy (Asmundson et al., 2019) and Eye-Movement Desensitisation And Reprocessing which has been shown to be effective across a range of cultures (Wilson et al., 2018).

Chapter 3 gave an insight into the experiences of hospitalised women who DSH, with a history of childhood abuse. The data provides support for the importance of implementing TIC, given that the participants often made links between their childhood trauma and engagement in DSH. The results indicate that further thought should be given to treating self-harm in the framework of an addictive behaviour. Research has shown that individuals who have a history of childhood trauma produce naturally lower levels of opioids (Stanley, 2010). Therefore, such individuals may engage in repeated self-harm at times of stress, to increase opioids and self-soothe using these chemicals released by the brain. As such, this may perpetuate the seemingly cyclic use of self-harm, with it becoming addictive in nature, and provides evidence for treating DSH in an addictive framework. It also highlights the

importance in the prevention of DSH and providing psychological interventions during the initial stages of engaging of DSH, given its addictive nature and the difficulty in breaking this cycle of behaviour.

Overall, improving the effectiveness of existing self-harm interventions for those with a history of childhood abuse (e.g., by paying greater consideration to past trauma) could lead to a reduction in self-harm across services. In addition, given that there was variation within the sample in the empirical study, in terms of past experiences, types of self-harm, and mechanisms they found helpful to stop self-harm, it is suggested that a tailored approach is taken rather than a one-size-fits-all approach.

Lastly, gaining a better understanding of the personal experiences of self-harm within hospitalised women can help inform risk assessment and management processes for those at risk of or currently self-harming. This may lead to the construction of better-informed and person-centred hospital-based interventions and policies, as well as aid community-based programmes. Whilst it is recognised that it is not possible to make generalisations from qualitative research, it is recommended that these suggestions are considered by practitioners with a view to inform ongoing and future research as well as expert input provided prior to making additions or adaptations to risk assessments, interventions and support offered to this population.

Future Research

The results reported throughout the thesis have highlighted areas in need of future research, in terms of self-harming behaviours among those with ACEs. Although research on risk factors for self-harm is growing, research is limited in terms of identifying protective factors for DSH in this population. There is a need for future research to focus on factors that may prevent an individual with a background of ACEs from engaging in DSH, as well as

research into factors that may aid individuals to stop self-harming. Research should focus on protective factors from personal, social and environmental perspectives. Given the empirical study focused on perceived factors which impact self-harm in women, future research should also consider gaining the lived experiences of other genders who self-harm.

Chapter 2 mainly included studies which were cross-sectional in nature and therefore, non-cross-sectional research is needed in this area to establish predictive factors for NSSI in a population of those with ACEs, ideally longitudinal studies, as in doing so, causality can be inferred. Most research was conducted in Western countries which highlights the need for research into risk factors for NSSI in those with ACEs to be performed more widely, given that NSSI is a global issue. Research conducted in Western countries could also study more ethnically diverse groups of individuals who reside in these countries given that only one included study examined a predominately African American sample (Bornovalova, 2011). Lastly, research should endeavour to use randomised sampling methods to mitigate the introduction of sampling and responder bias; thus, increasing the overall generalisability of results found.

Chapter 3 studies the experiences of self-harm in White British females only and therefore, more research is needed to explore the phenomenon in other cultures, ethnicities and/or other genders.

Conclusion

This thesis is an important addition to the literature on the issue of self-harm in those who have ACEs. For the health and well-being of this population, it is essential that intervention and support is provided to address their needs with a view to preventing self-harm occurring or assisting in stopping self-harm. Practitioners have a duty of care to ensure they keep up to date with research findings on the populations with which they work and to seek out further insights to help them develop their understanding of these populations. As such, it is hoped that this thesis will be beneficial to any working on the front line with this vulnerable population.

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Appendices

Appendix A – Inclusion/exclusion criteria form

	Inclusion	Tick any criteria met	Exclusion	Tick any criteria met and exclude from SLR
Population	Males and females that self-harm with a history of Adverse childhood experiences as defined in the current form. Males and females who experienced ACE but do not self-harm. Clinical and non-clinical population. Inpatient and community samples. Western and non-western countries		Individuals engaging in suicidal behaviours or studies that don't differentiate between suicidal and non-suicidal behaviours. Studies that use abuse that occurs solely in adulthood i.e. at the age of 18 or over. Papers that study those that self-harm without any mention of ACEs within the population.	
Intervention	Any interventions which included DSH as variable Mention of risk/vulnerability factors Mention of mediators and moderators of DSH Predictors of DSH in ACEs		Studies looking at prevalence of DSH in those with a history of ACEs No mention of factors that could increase/decrease risk of NSSI in ACEs	
Comparator	Appropriate control sample demonstrating resilience / risk factors i.e. those who self-harm without a history of ACEs or those with a history of ACEs that don't self-harm Studies comparing the population of interest with healthy controls. Comparing those who have and do not have ACEs that engage in DSH.			

	Within sample comparison			
Outcome	Statistical analysis of characteristics potentially increasing chance of SH Any information detailing mediators and moderators of SH in ACEs Level of engagement in self-injurious behaviour in those with and without ACEs		Research solely examining the correlation/relationship between ACE and self-harm. Simple correlational studies (as don't control for confounding variables) Looking at prevalence of ACEs in SH	
Studies	Research design: Quantitative and qualitative research Language: English Format of literature: full text peer reviewed journal article		Research design: case studies. Language: non-English Format of literature: dissertations, abstracts only, book chapters, grey literature	

Appendix B – Appraisal of Cross-sectional Studies (AXIS; Downes et al., 2016)

<i>Introduction</i>		<i>Yes</i>	<i>No</i>	<i>Don't know/comment</i>
1	Were the aims/objectives of the study clear?			
<i>Methods</i>				
2	Was the study design appropriate for the stated aim(s)?			
3	Was the sample size justified?			
4	Was the target/reference population clearly defined? (is it clear who the research is about?)			
5	Was the sample frame taken from an appropriate population base so that is is closely represented the target/reference population under investigation?			
6	Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation?			
7	Were measures undertaken to address and categorise non-responders?			
8	Were the risk factor and outcome variables measured appropriate to the aims of the study?			
9	Were the risk factor and outcome variables measured correctly using instruments /measurements that have been trialled, piloted or published previously?			
10	Is it clear what was used to determine statistical significance and/or precision estimates (e.g. p-values, confidence intervals)			
11	Were the methods (including statistical methods) sufficiently described to enable them to be repeated?			

<i>Results</i>				
12	Were the basic data adequately described?			
13	Does the response rate raise concerns about non-response bias?			
14	If appropriate, was information about non-responders described?			
15	Were the results internally consistent?			
16	Were the results presented for all analyses described in the methods section?			
<i>Discussion</i>				
17	Were the authors' discussions and conclusions justified by the results?			
18	Were the limitations of the study discussed?			
<i>Other</i>				
19	Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results?			
20	Was ethical approval or consent of participants attained?			

Appendix C

Quality Assessment Tool for Quantitative Studies

Effective Public Health Practice Project (EPHPP; Thomas et al., 2004)

Article name:

COMPONENT RATINGS

A) SELECTION BIAS

Q1. Are the individuals selected to participate in the study likely to be representative of the target population?

- 1) Very Likely
- 2) Somewhat likely
- 3) Not likely
- 4) Can't tell

Additional comments:

(Q2) What percentage of selected individuals agreed to participate?

- 1) 80-100 % agreement
- 2) 60-79% agreement
- 3) less than 60% agreement
- 4) Not applicable
- 5) Can't tell

Additional comments:

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design:

- 1) Randomised controlled trial
- 2) Controlled clinical trial
- 3) Cohort analytical (two group pre + post)
- 4) Case-control
- 5) Cohort (one group pre + post (before and after)
- 6) Interrupted time series
- 7) Other specify _____
- 8) Can't tell

Additional comments:

Was the study described as randomized? If NO, go to component C.

NO YES

If YES, was the method of randomization described? (see dictionary)

NO YES

If YES, was the method appropriate? (see dictionary)

NO YES

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

C) CONFOUNDERS

Q1) Were there important differences between groups prior to the intervention?

- 1) Yes
- 2) No
- 3) Can't tell

The following are examples of confounders:

- 1) Race

- 2) Sex
- 3) Marital status/family
- 4) Age
- 5) SES (income or class)
- 6) Education
- 7) Health status
- 8) Pre-intervention score on outcome measure

Additional comments:

Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

- 1) 80-100% (most)
- 2) 60-70% (some)
- 3) Less than 60% (few or none)
- 4) Can't tell

Additional comments:

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D) BLINDING

Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

Q2) Were the study participants aware of the research question?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E) DATA COLLECTION METHODS

Q1) Were data collection tools shown to be valid?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

Q2) Were data collection tools shown to be reliable?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F) WITHDRAWALS AND DROP-OUTS

Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

- 1) Yes
- 2) No
- 3) Can't tell
- 4) Not Applicable (i.e. one time surveys or interviews)

Additional Comments:

Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

- 1) 80 -100%
- 2) 60 - 79%
- 3) less than 60%
- 4) Can't tell
- 5) Not Applicable (i.e. Retrospective case-control)

Additional Comments:

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

G) INTERVENTION INTEGRITY

Q1) What percentage of participants received the allocated intervention or exposure of interest?

- 1) 80 –100%
- 2) 60 - 79%
- 3) less than 60%
- 4) Can't tell

Additional Comments:

Q2) Was the consistency of the intervention measured?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

- 1) Yes
- 2) No
- 3) Can't tell

Additional Comments:

E) ANALYSES

Q1) Indicate the unit of allocation (circle one)

community organization/institution practice/office individual

Q2) Indicate the unit of analysis (circle one)

community organization/institution practice/office individual

(Q3) Are the statistical methods appropriate for the study design?

- 1) Yes
- 2) No
- 3) Can't tell

GLOBAL RATING

COMPONENT RATINGS

Please transcribe the information from the grey boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK
		1	2	3
B	STUDY DESIGN	STRONG	MODERATE	WEAK
		1	2	3
C	CONFOUNDERS	STRONG	MODERATE	WEAK
		1	2	3
D	BLINDING	STRONG	MODERATE	WEAK
		1	2	3
E	DATA COLLECTION METHOD	STRONG	MODERATE	WEAK
		1	2	3
F	WITHDRAWALS AND DROPOUT	STRONG	MODERATE	WEAK
		1	2	3

GLOBAL RATING FOR THIS PAPER (circle one):

- 1 **STRONG** (no WEAK ratings)
- 2 **MODERATE** (one WEAK rating)

3 WEAK (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

- 1) No
- 2) Yes

If yes, indicate the reason for the discrepancy:

- 1) Oversight
- 2) Differences in interpretation of criteria
- 3) Differences in interpretation of study

Final decision of both reviewers (circle one):

- 1) **STRONG**
- 2) **MODERATE**
- 3) **WEAK**

Appendix D - Quality assessment results for papers included in SLR.

Quality assessment results for papers included in SLR.

Study & Overall Score	Introduction	Methods	Results	Discussion	Other	Method of analysis
Andersson et al. (2022) 85%	1/1 100%	9/10 90%	3/5 60%	2/2 100%	2/2 100%	Mediation analyses
Arens et al. (2012) 65% DUAL CODED: Final total and individual scores agreed as above	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Mediation analyses
Arens et al. (2014) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Negative Binomial Hurdle Model
Auerbach et al. (2014) 75%	1/1 100%	7/10 70%	4/5 80%	2/2 100%	1/2 50%	Mediation analyses

Bikmazer et al. (2022) 65%	1/1 100%	5/10 50%	3/5 60%	2/2 100%	2/2 100%	Hierarchical stepwise logistic regression analysis
Bolen et al. (2013) 75%	1/1 100%	6/10 60%	4/5 80%	2/2 100%	2/2 100%	One-way ANOVA
Bornovalova et al. (2011) 75%	1/1 100%	6/10 60%	4/5 80%	2/2 100%	1/2 50%	Path analysis and odds ratios
Brausch & Holaday (2015) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Mediation analysis including bootstrapping analysis and Sobel test
Brown et al. (2018) 85%	1/1 100%	8/10 80%	3/5 60%	2/2 100%	2/2 100%	Path analysis
Buser & Hackney (2012) 75%	1/1 100%	8/10 80%	3/5 60%	2/2 100%	1/2 50%	Mediation analysis and Sobel test

Caron et al. (2017) 65%	1/1 100%	6/10 60%	2/5 40%	2/2 100%	2/2 100%	Mediation analysis and bootstrapping analysis
Chaplo et al. (2015) 60%	1/1 100%	5/10 50%	3/5 60%	2/2 100%	1/2 50%	Hierarchical regression analysis, mediation analysis and bootstrapping analysis
Dodd et al. (2021) 65%	1/1 100%	5/10 50%	3/5 60%	2/2 100%	2/2 100%	Path analysis and exploratory correlation analyses
Franzke et al. (2015) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Path analysis and bootstrapping analysis
Gao et al., (2021) 60%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Hierarchical linear regression
Garbutt (2019) 75%	1/1 100%	7/10 70%	3/5 60%	2/2 100%	2/2 100%	Structural Equation Modelling (SEM)
DUAL CODED: Final total and						

individual scores agreed as above						
Ghinea et al. (2021) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	ANCOVA and structural equation modelling
Gomez (2019) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Hierarchical linear regression analysis and bootstrapping analysis
Gratz (2006) 70%	1/1 100%	6/10 60%	4/5 80%	2/2 100%	1/2 50%	Hierarchical logistic regression analysis
Green & Webster (2021) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Parallel mediation model and bias corrected bootstrapped confidence intervals
Gu et al. (2020) 80%	1/1 100%	8/10 80%	4/5 80%	2/2 100%	1/2 50%	Bootstrap analysis, moderated mediation analysis and simple slopes analysis
Gu et al. (2021) 75%	1/1 100%	6/10 60%	4/5 80%	2/2 100%	2/2 100%	Moderated mediation analysis, bootstrap analysis and simple slopes analysis
He & Xiang (2022)	1/1	7/10	3/5	2/2	2/2	Mediation analysis and bootstrap mediation analysis

75%	100%	70%	60%	100%	100%	
Howard et al. (2017) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Mediation analysis, bootstrapping analysis and multiple mediation analysis
Holden et al. (2022)	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Parallel mediation analysis and bootstrap analysis
Hu et al. (2022)	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Structural equation modelling (SEM)
Huang et al. (2022)	1/1 100%	7/10 70%	3/5 60%	2/2 100%	2/2 100%	Structural equation modelling (SEM)
Lev-Wiesel & Zohar (2014) 65% DUAL CODED: Final total and individual scores agreed as above	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	T-tests & MANOVA
Li et al. (2019) 65%	1/1 100%	4/10 40%	4/5 80%	2/2 100%	2/2 100%	Binary logistic regression analysis

Li et al. (2022) 100%	1/1 100%	10/10 100%	5/5 100%	2/2/ 100%	2/2 100%	Latent Class Analysis (LCA)
Low et al. (2000) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Path analyses
Nilsson et al. (2022) 65%	1/1 100%	5/10 50%	3/5 60%	2/2 100%	2/2 100%	Mediation analyses
Peh et al. (2017) 75%	1/1 100%	7/10 70%	3/5 60%	2/2 100%	2/2 100%	Path analysis
Qian et al. (2022) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Structural equation modelling (SEM)
Reyes et al. (2019) 60%	1/1 100%	5/10 50%	3/5 60%	2/2 100%	1/2 100%	Regression and mediation analysis
Roley-Roberts et al. (2022)	1/1	7/10	3/5	2/2	1/2	Mediation Analyses

75%	100%	70%	60%	100%	100%	
Rong et al. (2022) 80%	1/1 100%	8/10 80%	5/5 100%	2/2 100%	2/2 100%	Mediation analyses and bootstrapping
Shenk et al. (2010) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Individual and multiple mediator analyses and Sobel tests
Stagaki et al. (2022)	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Structural Equation Modelling (SEM)
Steine et al. (2020) 65%	1/1 100%	4/10 40%	3/5 60%	2/2 100%	2/2 100%	Hierarchical linear regression
Swannell et al. (2012) 75%	1/1 100%	8/10 80%	3/5 60%	2/2 100%	1/2 50%	Odds ratios and Sobel tests.
Talmon & Gingzburg (2018) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Mediation analysis and bootstrapping analysis
Tasca, J. (2021)	1/1	6/10	3/5	2/2	2/2	Multiple Regression Analysis

	100%	60%	60%	100%	100%	
Thomassin et al. (2016) 65%	1/1 100%	6/10 60%	2/5 40%	2/2 100%	1/2 50%	Path analysis and test of indirect effects.
Tian et al. (2020) 75% DUAL CODED: Final total and individual scores agreed as above	1/1 100%	8/10 80%	3/5 60%	2/2 100%	2/2 100%	Univariate binary Logistic regressions and odds ratios
Tian et al. (2021) 95%	1/1 100%	10/10 100%	4/5 80%	2/2 100%	2/2 100%	Hierarchical multivariate linear regression, structural equation modelling and mediation analysis.
Titelius et al. (2017) 75%	1/1 100%	6/10 60%	4/5 80%	2/2 100%	1/2 50%	Path analysis and mediation analysis
Turrel & Armsworth (2003)	1/1 100%	6/10 60%	3/5 60%	2/2 20%	1/2 50%	Log linear analysis

65%						
Wan et al. (2019) 85%	1/1 100%	8/10 80%	4/5 80%	2/2 100%	2/2 100%	Binomial logistic regression analysis
Wan et al. (2020) 85%	1/1 100%	8/10 80%	4/5 80%	2/2 100%	2/2 100%	Binomial logistic regression analysis and adjusted logistic regression
Wang et al. (2020) 85%	1/1 100%	8/10 80%	4/5 80%	2/2 100%	2/2 100%	Mediation and bootstrapping analyses
Weaver et al. (2004) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Multiple regression analysis
Weierich & Nock (2008) 65%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	1/2 50%	Regression analyses and mediation analysis
Wong & Chung (2021) 70%	1/1 100%	6/10 60%	3/5 60%	2/2 100%	2/2 100%	Path analysis and mediational analysis

Wu et al. (2023)	1/1	9/10	3/5	2/2	2/2	Moderated mediation analysis
75%	100%	90%	60%	100%	100%	

Quality assessment scores for papers excluded from the SLR (AXIS)

Study & Overall Score	Introduction	Methods	Results	Discussion	Other	Method of analysis
Asgeirsdottir et al. (2011) 55%	1/1 100%	4/10 40%	3/5 60%	2/2 100%	1/2 50%	Structural equation modelling
Demirci (2018) 50%	1/1 100%	3/10 30%	3/5 60%	1/2 50%	2/2 100%	T-test and Bonferroni test
Manna et al. (2021) 55%	1/1 100%	6/10 60%				Mediation analysis and latent moderated structural equation modelling
Murray et al. (2008) 55%	0/1 0%	6/10 60%	2/5 40%	2/2 100%	1/2 50%	ANOVA
Yates et al. (2008)	0/1 0%	6/10 60%	2/5 40%	2/2 100%	0/2 0%	Multivariate multinomial logistic regression analysis

50%						

Quality assessment scores for papers excluded from the SLR (EPHPP)

	A) SELECTION BIAS	B) STUDY DESIGN	C) CONFOUNDERS	D) BLINDING	E) DATA COLLECTION METHODS	F) WITHDRAWALS AND DROPOUTS
Wang & Lui (2023)	Moderate	Weak	Weak	Weak	Strong	Weak

Appendix E – Data extraction form

Data extraction field	Information extracted
Author:	
Year:	
Title	
Country of research	
Study aims	What are the aims and purpose?
Study setting	Where is the research set? In what context?
Research participants	Recruitment criteria Population and sample size? Characteristics of participants? i.e. gender, age, clinical or non-clinical population, ACEs etc. Were there appropriate control groups?
Study design and methods used	What data collection methods were used? What was the study design? What intervention was used? What tests were used? Over what time period is the study conducted?
Data analysis	How was data analysed?

	Any potential researcher biases?
Findings and conclusions	What are the findings? Stats (M, SD, test of difference, effect size) What are the conclusions drawn?
Limitations and future research	What are the limitations of the study? Are any future areas of research given?
My observations and additional comments	

Appendix F – Participant information sheet

PARTICIPANT INFORMATION SHEET

Perceived risk and protective factors in hospitalised women who self-harm with a history of childhood maltreatment

Hello, my name is Emma Sweeney and I am a Trainee Forensic Psychologist employed at the hospital.

I am completing some research as part of a project, for my Forensic Psychology Practice Doctorate course at the University of Birmingham. I would like to invite you to take part in my research study. Before you decide whether you would like to take part, take your time to read this information sheet.

What is the aim of this research?

I am interested to hear the views and experiences of women who self-harm or have self-harmed in the past. I am hoping to interview up to 6 women and I am interested in why you self-harm, what happens around the time you self-harm, and what can affect the likelihood of you self-harming.

Why have I been invited to take part?

You have been invited to this study because of your experiences with self-harm and the related lifetime adversity and support. You have unique and valuable insights that we would like to understand.

Do I have to take part?

No, taking part is completely up to you. Your care and treatment will remain the same, whether you choose to take part or not.

What data we want to collect?

We will need to use the information from your clinical records and from you for this research project. This information will include your name, age, psychiatric diagnosis, length of stay in hospital, history of therapeutic engagement, the nature of childhood maltreatment experienced and frequency and nature of self-harm behaviours. People will use this information to do the research or to check your records to make sure that the research is being done properly. People who do not need to know who you are will not be able to see your name, as once your data has been collected, you will be allocated a pseudonym (a fake name) for the data to be stored with. We will keep all information about you safe and secure. We will keep all information about you safe and secure. The information you provide will be kept securely for up to 10 years, with the academics and myself involved in the research having access to it.

What does the interview involve?

You will be asked to attend an interview with me at a date and time agreed between us. At the beginning of the interview you will be asked to read an information form and sign a consent form. Thereafter, you will be asked to provide some details about your lifetime experiences

with self-harm, including what happened in your surroundings and what went through your mind close to and at the time. The interview may cause some distress, but you can tell me as many or little details as you prefer.

The interview will likely last between 45-75 minutes. After the interview I will provide you with a debrief which includes some more details about the study. The interview will be audio recorded and I will type up a transcript of what was said, then delete the audio recordings. The transcript will not include your name so it will be kept completely anonymously. It should also be noted that some quotes may be included in the final write up of the study but again, they will be completely anonymous.

How do I enquire about participation?

If you are interested in participating in the research, or would like further information, then you can speak to myself directly or contact the DBT facilitators and express your interest through them. Not everyone will be accepted to participate in the study and as it is dependent on a screening procedure which will involve a review of clinical notes and confirmation from your clinical team at the hospital. Following the screening procedure, you will receive feedback about your suitability for the study. In addition, your Responsible Clinician will need to be informed of and agree to your participation in the study during one of the MDT reviews.

What happens if I want to change my interview date?

If for whatever reason you want to postpone or change the date of your interview, then you can contact me directly, or ask staff to do so on your behalf. It does not matter whether this is a few days before the interview or on the day. You do not need to give a reason as to why the interview needs to be postponed.

What will happen if I do not want to carry on with the study?

You can stop being part of the study at any time, without giving a reason, and you can withdraw all or parts of the data up to 2 weeks after your interview. If you do want to withdraw your participation, you can either inform the DBT facilitators or myself as soon as the opportunity arises. We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

What are the benefits of taking part?

Your participation in the study is voluntary and it cannot be guaranteed that the study will help you personally. However, the information you give will help us gain a better understanding of why people self-harm, particularly in relation to a population of hospitalised women. This can help inform better risk assessment and management processes for those at risk of self-harming. It will also aid the exploration of the effectiveness of interventions in those who self-harm and may inform hospital and community-based programmes. Ultimately, this could lead to a reduction in the occurrence of self-harm across the different services.

What will happen to the results of the research study?

The findings will be written up as a research project as part of my University course and may be published in a scientific journal. The write up might include quotes of what you say in the interviews, but it will not mention your name or any other details that can reveal your identity. I will send brief details of the results to the Lead Psychologist to be shared with those who

have taken part in the study, should you wish to read it. If you are no longer available, then you can contact the hospital and request for a copy to be forwarded on to you when you leave.

Where can you find out more about how your information is used?

You can find out more about how we use your information

- at www.hra.nhs.uk/information-about-patients/
- our leaflet available from www.hra.nhs.uk/patientdataandresearch
- by asking the researcher or by sending an email to dataprotection@contacts.bham.ac.uk

What if I have any further concerns?

If you have any concerns about taking part, please speak to myself directly or one of the DBT facilitators who can pass on your queries. Alternatively, you can raise any concerns with the hospital's Independent Mental Health Advocate whose details are on all hospital ward display boards.

The University has in force a Public Liability Policy and/or Clinical Trials policy that provides cover for claims for "negligent harm" and the activities here are included within that coverage.

Thank you for your interest,

Emma

Appendix G – Letter of participation for clinical file



Emma Sweeney,
Trainee Forensic Psychologist
School of Psychology
University of Birmingham
Edgbaston
Birmingham
B15 2TT

Dear [name of RC]

Subject: Patient taking part in research study 'Perceived risk and protective factors in hospitalised women who self-harm.'

This letter is to inform you that [name of participant], a patient of yours, is taking part in the abovementioned research study sponsored by the University of Birmingham. This study involves exploring the function of self-harming behaviours in hospitalised women with a history of childhood abuse, as well as exploring their perception of what increases and decreases their risk of engaging in self-harm.

The study consists of a face to face interview that will take place in a booked-out interview room located at [the hospital's name], where they are currently residing. It is estimated that the interview will take between 45-75 minutes.

Upon completion they will receive a comprehensive debrief, including information about who to contact if they feel distressed. Participants will have selected key members of staff to seek support from on the ward, should they need it following the interview.

The study has been approved by the NHS REC committee. If you have any questions about the study, please contact me on the email address below.

Best wishes,

Emma Sweeney
Trainee Forensic Psychologist



Appendix H – Interview Schedule

Interview topics/ questions

1. Can you tell me what the term ‘self-harm’ means to you?
Possible prompts: What is your understanding of self-harm? What sort of behaviours do you think self-harm refers to?
2. In your view, why do you think you started self-harming?
Possible prompts: When did you start self-harming? Did something happen that led to you self-harming? Can you tell me a little bit about what was going on in your life around that time? If you feel comfortable to do so, could you tell me about the first time you self-harmed? What did you hope to gain from self-harming, if anything? How were you feeling around the time you started self-harming? Did self-harm help you in any way? Was there anything you could have done other than self-harm that may have achieved a similar outcome?
3. Can you tell me a bit about what leads you to self-harm now?
Possible prompts: If you feel comfortable, could you give me an example of a recent situation, which led you to self-harm? Are the reasons the same/similar to when you first started self-harming, or have they changed? If they have changed, how have they changed? Are there situations in which you are more likely to self-harm? How do you feel before/during/after self-harming? How do you think self-harming has impacted your life?
4. Can you tell me about anything that reduces the chances of you self-harming?
Possible prompts: Have you learnt any methods/skills throughout your life that can help prevent you from self-harming? Are there any situations where you’re less likely to engage in self-harm? Is there anything that helps you to not act on self-harming urges?
5. Can you tell me about a time when you had urges but did not self-harm?
Possible prompts: Can you tell me a little bit about what was going on in your life around that time? In your view, why do you think you were able to resist the urge to self-harm on this occasion? Did you do anything instead of self-harming? If so, did this achieve a similar outcome/feeling to that of self-harming? why/why not?
6. What advice would you give someone who self-harms but would like to stop?

Appendix I – Participant consent form

CONSENT FORM

Perceived risk and protective factors in hospitalised women who self-harm with a history of childhood maltreatment

Researcher: Emma Sweeney, Trainee Forensic Psychologist

	Please write your initials in the boxes below if you agree with the statement
I have read and understood the Participant Information Sheet (Version 7.0 dated: 02/02/2021)	
I have had the opportunity to ask questions and consider the responses.	
I understand that my participation is voluntary.	
I understand that relevant sections of my medical notes and data collected during the study, may be looked at by individuals from the research team, the University of Birmingham or from regulatory authorities, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	
I understand that data collected about me includes name, age, psychiatric diagnosis, length of stay in hospital, history of therapeutic engagement and frequency, nature of childhood maltreatment experienced and nature of self-harm behaviours. Interviews will be audio recorded but then deleted once they are typed up. I consent for this data to be collected.	
I understand that I can withdraw all or parts of the data up to 2 weeks after my interview. I know who to inform about my decision to withdraw.	
I understand that quotes from my interview may be included in the write-up.	
I understand that my Responsible Clinician will be informed of my participation in the study.	
If information disclosed during the interview will raise serious concerns about risk to self or others, this may need to be shared with the appropriate people in your clinical team.	

I agree not to discuss the content of the interview with other actual and potential participants, as to not affect their participation in the study.	
I agree to participate in the study	

Name of participant: Signature: Date:

Name of researcher: Signature: Date:

Appendix J – Participant Debrief Sheet

PARTICIPANT DEBRIEF SHEET

Perceived risk and protective factors in hospitalised women who self-harm with a history of childhood maltreatment

Information about the study

- Research has shown that women who have experienced childhood maltreatment are at high risk of engaging in self-harm behaviours and this study aims to understand the associated motives, vulnerabilities, and resilience factors.
- Research into the treatment of self-harm has shown that only about half of the treatment type are effective and it is important for others to understand ‘what works’ and ‘what doesn’t work’ from your perspective.
- It is anticipated that the research will allow a better understanding of self-harm within the population and ultimately inform preventative measures, risk assessment, management procedures, and interventions for those at risk of self-harm.

Can I withdraw from the study

- Yes, you can also change your mind up to two weeks after the interview and request all or part of your interview to be removed from the study.

If I need extra support

- If you feel you need extra support following the interview, then we can contact the key staff members you have already identified to support you back on the ward. You can also speak with your named psychologist about any difficult experiences or feelings that have arisen during the interview.
- If you have any questions about the interview at a later date, feel free to contact me directly or pass any concerns onto the DBT facilitators should you feel more comfortable.

I would like to take the opportunity to thank you again for taking part, sharing your experiences and thoughts with me has proved extremely valuable.

Thanks,

Emma Sweeney
Trainee Forensic Psychologist

Appendix K – Example of Annotated Transcript; Laura

Experiential statements	Transcript	Exploratory noting
Invalidation of feelings contributed to DSH.	Part: and aggression and obviously not very... people didn't like validate my feelings as such. I'd say. Int: Okay thank-you. So you said that you did it because you felt numb and it was like to feel something. Was there anything else that like you benefitted from, from self-harming? Or the reason like you did it, other than stopping feeling numb?	People not validating her feelings contributed to DSH.
Engaged in DSH to feel something but then it "got out of hand."	Part: ermmmm I don't really know. It's just, I think to start of with, it's literally just to feel something. And then it just got out of hand. I dunno. Int: Okay, thankyou. So do you think, you said then that it got out of hand, did it like slowly change? How you self-harmed and how often you self-harmed?	Started DSH to feel something and then "it got out of hand." Seems unsure
The more trauma experienced as she got older, the worse DSH got.	Part: Yeah. As I got older and I had more, well trauma basically happened, the worse it got. Int: Okay.	The more trauma experienced. The worse DSH got.
Engaged in DSH multiple times a day, even at school.	Part: And then it came to like, I was doing it every day, twice a day, three times a day like. Even when I was at school I'd just go to the toilets and do it.	DSH escalated to multiple times a day. Even engaged in DSH at school, in the toilets.
At school, would do DSH in the toilets.	Int: Do you think it's hard to stop self-harming once you start?	
Was hard to stop DSH when a teenager, gotten easier as an adult.	Part: Errrm when I was younger yes. As I've got a bit older it's still hard but not as, not as hard as it was when I was a teenager. Int: Why do you think that is?	It was hard to stop DSH when younger, still hard now as an adult, but not as much as when a teenager.

As adult able to go out and distract self more due to less restrictions on what you can participate in. This helped reduce DSH as an adult. When DSH reduced, engaged in other risky behaviours Addicted to DSH as a teenager. When able to stop DSH for a few months, would resort back to it every time. Would engage in DSH as a form of self-punishment, rather than for the pain itself. Does not physically feel DSH Engaged in DSH as a form of self-punishment and to manage things which happened in life. Would engage in DSH when she “should have done better.”	Part: Errrrmmm. Well I think like once I was an adult I was like going out with friends, and you got, you’d be distracted more but when you’re like, during high school, there’s only like, you’re only limited to things that you can do coz of your age and stuff. So I think there was more distractions, that I could like participate in, to distract me enough. Int: Were the other behaviours you engaged in, instead of self-harming as you got older? Part: Yeah I started doing like drugs, taking drugs, getting in with the wrong crowd, and taking drugs and drinking. Ermm and like partying, sleeping with random people. So yeah.. Int: Yeah. Do you think self-harm can be addictive in itself? Part: Yeah. I would say that when I was a young teenager at about 13, I was like addicted to it then. But then when I stopped when I was like 16 ermmm. I don’t even know why I stopped for a few months, it just happened, and ermm and every time I resorted back to it, it’s been more for like self-punishment, than the actual pain of it. Coz I just don’t or if I don’t feel anything I can just slice my arm, although I don’t even feel it. Yeah. Int: Okay that makes sense. So you’ve kind of touched on it but has the reasons why you started self-harming changed to the reasons you might self-harm now? Part: yeah. Int: In what way? Part: Ermmmm Int: I know you said the self-punishment thing.	Reducing DSH wasn’t as hard an adult due to being able to go out and distract self more. More restricted as to what you can participate in/ distract self with as a child due to age. When DSH reduced, engaging in other behaviours such as taking drugs, sleeping with random people. Addicted to DSH as a young teenager. When stopped DSH, would resort back to it. DSH for self-punishment, rather than the pain. Doesn’t feel DSH – “slicing arm” DSH as self-punishment and to deal with things which happen in her life.

Reasons for self-harm have changed from being a child due to experiencing further trauma as a teenager and adult. Self-medicated with drugs, alcohol and sex. DSH increased when in an abusive situation/relationship with a man. Would blame self for trauma and believe she'd done something wrong. Would DSH to punish self.	Part: Yeah. Self-punishment and ermmmm I deal with like a lot of things and it's more like self(<i>inaudible</i>). I like, when things like happen in my life and I feel like I should have done better and like.... I don't know what else to say. Int: It's okay. Part: No, I don't know anything else. Int: That's fine, that's good. Yeah. Why do you think, ermmm, that's changed as you've got older is that because, more trauma, traumatic things have happened to you so you've started internalising it a little bit? Part: Yeah definitely. Int: Okay Part: Coz as I've like obviously, I had a lot of trauma through childhood, teenage years and like when I first turned 18. Errmmm staying at people's houses on a weekend until like, party all weekend coz if not I'd literally be home, otherwise I'd have nowhere to stay. Like I still went to work, still went to college, I still did everything like that like. Int: that's good that you still managed to keep all that up. Part: Yeah I managed to keep all that up and I was basically just self-medicating with drugs and alcohol and sex. And then I was in like an abusive situation, not in a relationship but friends with benefits if that's what we want to call it. It was my drug dealer so it just went tits up from there, he got me like round quite a lot of bad people and things happened and I just didn't see it until recently but I just always thought it was like my fault, like I'd done something wrong. So like I was just punishing myself.	DSH when should "have done better." Experienced a lot of trauma throughout childhood, teenage years and when first went 18. Would party to avoid going home. Still went to work, college etc. Managed to keep functioning by "self-medicating" with drugs. alcohol and sex. Was in an abusive situation with a man, always blamed self, like she'd done something wrong. So DSH was punishing herself. DSH got worse when in abusive situation/experiencing trauma. Always thought it was her fault – until recently? Doesn't think that now?

Recent DSH caused by “big trigger” and then dissociating. Unaware of the extent of DSH when doing it in terms of physical harm, until she had “come round.”	Int: and did your self-harm get worse around that time? Part: Yeah Int: Okay, that makes sense. Thankyou. It’s slightly different now coz you’re in hospital I suppose, but like could you give me an example of a recent situation which led you to self-harm? Coz again I’m assuming that that might be a bit different. Part: Ermmm... The other week when we had ermmm I had a big trigger and I was dissociating a lot and I didn’t realise I was head banging but I didn’t obviously realise it until I’d like come round. Like the extent of it. Or I’d hit my head with like my vape and it’s like pouring with blood and I’m just like, I don’t even know, that it’s like bleeding.	Recent DSH was caused by a “big trigger” and dissociating a lot. DSH and not known she’d done it or the extent of it. Head is pouring with blood and she “doesn’t even know that it’s like bleeding.” Would come around from dissociation in the bath with blood in the water and “not realise how far she’d taken it.”

Appendix L – Overview of GETs and sub-themes across participants.

A. JOURNEY OF SELF-HARM

Self-harm just got worse

DSH is a “slippery slope”, believes if she got help when she first started, then DSH wouldn’t have escalated. (Jade, p.8.)

‘I think it’s a slippery slope, I think if like I would have got help when I very very very first started self-harming, I probably wouldn’t have got to the situation that I’m in now but I also think a lot of people misunderstand ermmm and I think yeah it’s just yeah.’

DSH escalated and just got worse. (Sarah, p.4.)

‘Like when I first did it, like, I wasn’t in a safe environment. Like I was just sat in my room and it was getting worse and worse.’

The more she DSH, the worse it got. (Jade, p.3)

‘I remember it being a really stressful day at school and I just remember ermmm, I didn’t do anything like really really bad, the more I self-harmed the worse it got, so the first time I self-harmed it wasn’t like bad but I remember using nail scissors and I used to cut my legs because ermmm, I was a dancer so like my arms, I had to wear like a leotard and stuff so obviously I didn’t want people to see it. So I thought if I like cut all up my legs (pointed to top of legs) then I thought that obviously no-one would see it and I always used to listen to a certain like CD as well and I don’t know why it was just like certain songs I used to listen to whilst doing certain things. Ermm and yeah I just I just sat in my bedroom and I just cut my legs yeah, with a with erm nail scissors.’

When first started DSH cuts were small but then it escalated and got worse. (Sarah, p.2.)

‘I was in my bedroom and like, I don’t know. I’d had a really bad day and I’d done like a little cut on my arm. It wasn’t like serious. But that was the first time I’d done it but it wasn’t like bad or anything. It was just a little bit but then it started getting worse.’

Compares escalation in risk of DSH to that of building up a tolerance to adrenaline. (Jade, p.3 & 4)

‘Like people who are like adrenaline junkies, to start with like a rollercoaster and then they like, go to like, I don’t know, bungee jumping, do you know what I mean?... So like I think that like the more I self-harmed, the more I had to do to make me feel the way I did. If you get what I mean.’

The more trauma she experienced as she got older, the worse DSH got. (Laura, p.2.)

‘As I got older and I had more, well trauma basically happened, the worse it got... And then it came to like, I was doing it every day, twice a day, three times a day like. Even when I was at school I’d just go to the toilets and do it.’

Compares experiences of self-harm to the experiences of those addicted to drugs and alcohol.

Comparing stopping DSH to an alcoholic saying they’ll never have a drink again. (Lucy, p.3.)

‘Like I have stopped now coz I felt like there’s, there’s other ways to stop that. It’s not like I’m gonna say I’m never gone stop self-harming because that’s like saying to an alcoholic “oh you’re never gonna drink again” but well I suppose, eurgh I don’t really know to be honest... I know that sounds bad but in some ways I think it can be addictive.’

Riding out the urge to self-harm, same as riding out urge to drink for an alcoholic. (Amy, p.10.)

‘You have to ride the urge out. So it’s like a drink, if you feel like you need a drink, you have to do something to stop yourself from having a drink. To stop yourself from having a drink, you do something else.’

Has learnt to fight the urge to self-harm – like fighting an addiction such as drugs. (Amy, p.6)

‘So I used to have a thing where you used to go like, write down how long, so I’d go like 20 days, a month, two months, three months and then when you start again it’s like ohhh I might as well just carry on now. But it’s harder not to self-harm, than it is to self-harm because it’s so much easier to pick something up and self-harm. People don’t realise, it’s an easier thing to do. I could pick something up now and self-harm but it’s harder not to... You’ve gotta fight that urge and you’re trying to find something else to do to make you feel better...It’s like drugs. It’s like alcohol. People go for the alcohol to survive. I went to self-harm and a lot of it was when I was younger, especially after my mum died, I wanted to be with my mum and then when I learnt to do, learnt how to

grieve for my mum, when I realised that she was in a better place, that helped. And then with the self-harm, errmmmm, it was, it's really hard not to. But once you've done it so long it gets easier.'

Prefers to have access to some items to self-harm with as a safety net, even if no intention of acting on urges. (Amy, p.13.)

'Say I've got something here to hurt myself, even if I don't feel like hurting myself, that makes me feel like at least I've got something and I don't have to find it. Say I didn't have this, yeah, and I don't feel like hurting myself, I then I did, I would be more anxious because I'd have to find something, knowing you've got something can sometimes make you feel a bit more like... Yeah a safety net. It's like having alcohol in the house. You're not going to drink it because you're an alcoholic but just in case you want it. It's there.'

"You learn to live with it"

Would always resort back to DSH as a teenager. (Laura, p.3.)

'I would say that when I was a young teenager at about 13, I was like addicted to it then. But then when I stopped when I was like 16 ermmm. I don't even know why I stopped for a few months, it just happened, and errm and every time I resorted back to it'

Considers DSH to be a lifelong problem. (Lucy, p.9.)

'I know it's going to be hard to stop but try, try your best but in the end, you're never gonna stop but try breathing skills or try find something that you'll enjoy doing and if you enjoy it, stick to it. Just dunno just take each hour as it comes or take, each day by day, hour by hour don't... and if you do end up doing it, don't beat yourself up about it. At the end of the day it's something that you're always gonna do and this is what my mum says to me, at the end of the day, take hour by hour, day by day, if you do do it, don't beat yourself up about it.'

Self-harm will be a lifelong problem, just learnt to manage it better. (Amy, p.6.)

'You learn to live with it. I might go years without self-harming but I'll probably never be free from self-harm but I can try and live a normal life as much as I can without doing it. But I can't say that I'll never hurt myself ever again. But I'm gonna say I'll try not to because there's no point anymore, I don't get the same thing out of it that I used to.'

Still gets thoughts to self-harm daily but has coping skills to resist them. (Amy, p.12.)

'I get thoughts everyday right, but it's just the way you deal with them like. It's the same as voices but they're thoughts. Right but when you're in a better place, you just try and ignore them, try and put the TV on and do things that, you do things that make you happy...but yeah there has been times and I've sat there and so badly wanted to hurt myself. The time before when I didn't take an overdose, I went to staff and I said I feel like this is how I'm going to be. I felt so badly wanting to, but I just had to get out of the room. Get out of, away from the things I had to hurt myself because especially on (name of current ward) I've got stuff to hurt myself with. I had to get out of that room and just had to say, it's not even like me but I had to go to someone and say I feel like hurting myself please help me.'

She still gets DSH urges but they're not as often and strong as they used to be. (Sarah, p.1.)

'I used to like bang my head quite a lot and I'd like burn my hands with cigarettes. I used to also punch myself in the face but at the minute with my new medication, I'm feeling a bit more stable. I have less self-harm urges. I still get them but just not as often and as strong as I used to.'

B. REASONS WHY I SELF-HARM

Self-harms when emotions get too much

Self-harmed in response to experiencing unwanted emotions (Amy, p.5.)

'I did it because I think I got scared. All my emotions were coming back and actually I think it was like. I did a bit of my psychology and it was getting too real.. It was when I was doing some really bad psychology and I just, I'd just had enough. I'd had some information about my past and I was just learning how to read it, I was just going over it and over it, and that's what I used to do.'

Self-harmed to deal with emotions, especially anger. (Amy, p.4.)

'That's how I used to deal with my emotions, or anger. I never got into trouble, I never got into, I'd never had a fight, I never got into a disagreement, I just hurt myself. I disliked myself a lot so... I'd felt like I'd been abandoned and I'd lived a different life from my sisters and that so I felt very...I felt rejected.'

DSH brings about a sense of release, like all emotions are gone and everything feels better. (Lucy, p.5.)

'I feel a release. I feel like everything just off my shoulders, I feel like everything's just gone. Do you know what I mean? I know this sounds bad but when I see blood it feels, it makes me feel a lot better... It makes me feel a lot better seeing blood. It makes me relieved and that everything feels better.'

DSH gives a sense of relief and releases stress, anxiety and being upset. (Lucy, p.1.)

'It made me feel better when I self-harmed... Just relieving pressure and anxiety and stress and upset... Well I didn't know anything different at the time. So that was my only, ermmmm like, sort of like release at the time.'

DSH can be grounding when experiencing anger. (Laura, p.9.)

"When I'm angry, yeah it's helpful, because it can bring me back down to normality just from self-harming, cutting mainly."

Self-harm to punish myself

Would punish self when others were horrible/hurting her. (Amy, p.3)

I'd never hurt anybody up to that stage. If I'd got upset, I'd hurt myself... 'I would take it out on me. If you were horrible to me, I'd go back to wherever I was and hurt myself.'

DSH was self-punishment i.e. if eaten too much or didn't like herself. (Jade, p.1)

'Well, when I started self-harming, I was already struggling with my eating. So like first of all it became like... first of all I was like stressed at school, so I used self-harm because, I don't know why I, yeah, I just did it but errmmm also I used it as like a punishment, like if I'd thought I'd eating too much, or if I didn't like myself I'd kind of punish myself, so I used it as kind of like a punishment.'

Would engage in DSH as a form of self-punishment rather than for the pain itself. (Laura, p.3.)

'It's been more for like self-punishment, than the actual pain of it... I deal with like a lot of things and it's more like self(inaudible). I like, when things like happen in my life and I feel like I should have done better.'

Would blame self for trauma & believed she'd done something wrong – would then punish self. (Laura, p.4.)

'Coz as I've like obviously, I had a lot of trauma through childhood, teenage years and like when I first turned 18. Errmmm staying at people's houses on a weekend until like, party all weekend coz if not I'd literally be home, otherwise I'd have nowhere to stay. Like I still went to work, still went to college, I still did everything like that like... Yeah I managed to keep all that up and I was basically just self-medicating with drugs and alcohol and sex. And then I was in like an abusive situation, not in a relationship but friends with benefits if that's what we want to call it. It was my drug dealer so it just went tits up from there, he got me like around quite a lot of bad people and things happened and I just didn't see it until recently but I just always thought it was like my fault, like I'd done something wrong. So like I was just punishing myself.'

During DSH feels as if the internal pain and need for punishment has stopped. (Sophia, p.6.)

'So before I self-harm, everything is going really really fast and I have a lot of internal pain and then during self-harm, I feel like everything has stopped and the pain has stopped, the punishment has stopped when I've done it and I don't need to be punished anymore... everything just stops. I have to re-evaluate everything and like it's just very confusing for me and it was just as confusing as before I self-harmed but I had a bit of a something's changed, even though it hasn't really changed, physically something has changed. And that's what I want in that moment. It's still the exact same moment but if I know something has changed and if it hasn't really, in my head it makes me feel better.'

Childhood abuse made her feel like she needed to be punished, so acted this out in the form of DSH. (Sophia, p.2.)

'I'd say I was hating my body, ermmm, wanting to cut all the fat off. Errmmm feeling like I didn't deserve nice things I deserved to self-harm. That I was disgusting, so that was around food, from my mum's influence around my food difficulties and also obviously the childhood abuse, making me feel like I needed to be punished and that's what I deserved.'

She thought she was a bad person and deserved to be punished. (Sarah, p.2.)

'I don't know really I just like, thought like, I don't know like it would be a good idea and like it would help me. And like sometimes I thought I was a bad person and I deserved to do it but other than that I don't really know why I did it.'

Feeling the need to punish self in response to various situations can trigger DSH. (Sophia, p.5.)

'Also things that trigger me, lead me to self-harm are ermmm just general trauma triggers, feeling that I need to be punished, that I've done something wrong, I've upset someone.'

Self-harm to feel in power/control

Engaged in DSH to gain a sense of power in her life, as she was the person harming herself. (Sophia, p.2.)

'Power probably... knowing I can do something to my body that's harmful but it's me that's doing it.'

DSH gave her control – if she could hurt herself, then no-one else had to. (Sophia, p.3.)

'Ermm it was like a little, with the trauma it was supposed to be a little secret and I think with self-harm that was supposed to be secret but it was where I was both the perpetrator and the victim. So it gave me control to know that no-one else has to hurt me, I can hurt me and I don't have to let anyone else hurt me.'

Used DSH as a form of control, as it was the only control she had in her life. (Jade, p.1& 2)

'Sometimes I used it as like, a way of like, control like, if that was the only control I had in my life if you know what I mean and like hurting myself, and and it made me feel like I had power so like even if like other people hurt me, I know that I can always hurt myself more. Do you know what I mean so like I had the power... Whereas like when other people hurt you, you're not, you don't have power over that.'

Has more power than anyone else when DSH. (Jade, p.6.)

'Feeling like I have control and power like, I know that if I'm like self-harming I've got the power. Do you know what I mean? I know that sounds a bit weird... Yeah so like, I've got more power than anyone, because I can hurt myself as much as I want.'

I self-harm to feel something

Would engage in DSH to feel something. (Amy, p.11 & 12.)

'Sometimes, it's hard to describe but sometimes I'd feel numb and I used to feel like I was dead inside...And sometimes I used to hurt myself just to feel something and if I could feel it then I know I'm still alive basically. Because sometimes I was so numb, so empty, I was just so, it was like I was just floating through my life.. Yeah so like try and hurt myself just to feel something. Like I used to stab myself and stuff just to feel something. I never felt something.'

Prior to DSH either feels emotionally overwhelmed like she's "going to explode" or she feels nothing at all, "numb." (Jade, p. 7)

So I either feel full of emotion, like so full, I feel like I'm going to explode or sometimes I feel like nothing, no emotions, nothing at all, I feel numb, I can't feel anything. So sometimes it's like one end of it and other times I'm at the other end like, I'm totally full so full I feel like I could burst so that's why I want to self-harm to get it out or I'm completely numb, I can't feel anything and I want to feel something, want to feel something physically coz I can't [pause] coz nothing.

When engaging in DSH always feels numb, cannot feel anything physically even when seeing the wound. (Laura, p.6.)

'I can do like head banging for instance to get something out of my head. And I'll just keep getting worse and worse coz like I can't feel the pain. So you just do it harder and it like gradually, you just don't feel the pain... Always I just feel numb. I can just like cut my arm open and like stare at it pouring with blood and I'm not even feeling it.'

She could self-harm and not feel anything. (Amy, p.12.)

'When I was so bad in depression, I went and had my first breakdown and I couldn't feel anything. I used to hurt myself and not even feel anything. I was I, I, I'd cut myself and I'd not even know that I was bleeding or whatever. I'd just do things and not have, depends how far you are in your depression... The beginning of your depression, I'd say, when you're really really bad, you don't feel anything. You don't even know what sort of,

what is going on. It's like adrenaline, that you have and you hurt yourself and you don't know you've done it really. I wouldn't even know there's a wound there. If that makes sense?'

Started engaging in DSH as a child due to not feeling anything. Felt "numb." (Laura, p.1.)

'I first started self-harming when I was like 10 and I think it was because I was like, I was quite numb. And I didn't feel anything and I can remember like whacking my arm on the door and like scratching all across my arm. I had this urge to actually feel something so after this I just like started cutting myself.'

C. RELATIONSHIPS AND SELF-HARM

Negative relational experiences

A healthy childhood may have prevented DSH, being in an environment which was validating. (Sophia, p.4.)

'Ermmm I think what would have helped me cope. I think it would have just been a healthy childhood, where they didn't put bodies down and they didn't criti criti criticise bodies, they didn't ermmm not have somebody to talk to. Just I think if I had a healthy childhood, I know no-ones is perfect but I feel if I had a childhood where it was validating, reassuring, I could open up, there were no judgements, they wanted me to be healthy rather than perfect.'

Speaking to someone may have reduced chances of DSH as a child but care staff changed so often, she couldn't form relationships with them. (Amy, p.5.)

'Maybe I could have tried to speak to the staff but we had different staff like here, and I was in a kids home. So often there were such different ones that you didn't know the person... 'You might like that person, which I might talk to, but they might not be here the next day.'

Being moved around different places at the ages of 16/17 contributed to increased self-harm. (Amy, p.2.)

'It was that, I was in care and I was just moving from place to place...I'd moved in a year to about 12 different places, from a week, to a couple of days, to about 6 months... And I just couldn't hack it and that was like my way of just like releasing something and I'd wonder, I used to get upset and wonder why people couldn't cope with me.'

Being moved into foster care & being bullied at school first triggered DSH. (Sarah, p.1 & 2.)

'Because when I was younger I got moved into foster care...I think it really started when I was about 13, because I was getting bullied at school and then I was just feeling really rubbish. I knew it wasn't normal but I just didn't like tell anyone, until like people noticed.'

Witnessing domestic violence and aggression in the family contributed to the development of DSH (Laura, p.1.)

'Witnessed a lot of domestic abuse in the family and aggression... and aggression and obviously not very [pause] people didn't like validate my feelings as such. I'd say.'

Didn't have a good relationship with mum at the time, so couldn't go to her for support. (Jade, p.2.)

'Recently my aunty died from cancer and my mum was quite like, I wouldn't say she was depressed but obviously that was her sister so like she was... Grieving so I never felt like I, and I didn't have a good relationship with my mum at the time, so I never felt like I could go to her when I was upset or anything, coz I felt like you know she was, she'd just lost her sister how could I say that and then...And I think like I got picked on a lot at school and then I went, got put under a lot of pressure for my GCSEs and stuff and school work. I know that sounds a bit silly.'

Reasons for DSH now are linked to past abuse, being bullied and not feeling accepted in society due to being gay. (Lucy, p.4.)

'Ermm because something happened to me when I was younger as well, bullying and then just not like being accepted in society, ermm being gay and things like that. People would just like take the piss and things like that.'

The importance of relationships in stopping self-harm

Sometimes peer relationships can be more helpful in reducing DSH than professional ones (Amy, p. 7&8.)

'I've made it this far because of the patients in this ward as well. People, we've helped each other, me and (name of service user), we've helped each other so much together, there's other people, me and (name of another service user), we went through it together, we've come through it together, because the staff yeah, are there to help us but what sometimes people think that it's bad, it is bad sometimes that patients help each other, but what they don't realise is, we've been through that same thing, right so I can probably help somebody, as long as I'm not encouraging them to hurt themselves, I can help that person better than a member of staff can... I know what they're going through.'

Acceptance within relationships & of self has helped with recovery. (Amy, p.8.)

'That's what, I think the reason why I like myself a lot more is coz I know I can be myself, I've found proper love in a hospital, where you wouldn't think so. But I, I have, all it is, in our minds our relationship is the same as anybody else's, right, so that's helped me love myself... Yeah and like acceptance of myself. Now I can look at it is, I used to look at it like, I want to be normal like my sisters, like my dad never wanted to know me. I look now and think, I wouldn't want to live with my dad. After what he did to me, and what he used to do to me as a child, I didn't, wasn't to be there, I'm glad. I was lucky, I got out of that, it's my sisters who are the ones that errr, had to put up with it. I've had a better life than them coz I've been spared that.'

In order to stop DSH, you need a positive support network. (Amy, p.13.)

'them like, have a routine and make sure that you have a support network around you. There's no point trying to stop self-harming, if you haven't got the right support around and the right people. Just like you can't give up drinking if you're around a load of alcoholics.'

Being around family and friends reduces DSH. (Laura, p.10)

'Probably being around my nephews and my family... Like, ermm being around friends. Going out and like I dunno grabbing food with a friend or going shopping. Or something like that yeah.'

Didn't have friends when younger so building relationships with staff and peers in hospital has helped. (Sarah, p.4.)

'But since I've been in hospital I've learnt like little skills and built relationships with like peers and the staff. And like I didn't really have many friends when I was younger so it's a lot more easy and things here.'

Being around others reduces DSH, as she does not want to expose them to traumatic situations. (Sophia, p.11.)

'Family, friends, if I'm with them I won't do it anymore. I've caused them too much trauma, I've caused me too much trauma, trying to self-harm in front of them. Ermmmm, I haven't done that with my friends... So the people I'm with. I'd probably say that's the main thing. The people I'm with.'

Appendix M – Reflective statement

As a forensic psychologist in training enrolled on the Forensic Psychology Practice Doctorate at the University of Birmingham, and the primary researcher in the current study, I was mindful of the challenge to remain neutral. I am a part-time student and had been enrolled on the course three to four years at the time of conducting the research. I have also worked in hospital and community-based settings with adults with mental health problems for ten years. This included working in a low secure forensic unit for the past 6 years. During this time, I have been fortunate enough to work with both men and women with a range of psychological difficulties including those with psychosis, anxiety disorders, depression, personality disorders, intellectual disabilities and trauma related disorders such as PTSD. I have also worked with older adults with diagnoses dementia who were displaying challenging behaviours. In response to this, I believe I have developed a flexible and candid therapeutic approach, in order to be able to establish a robust and positive therapeutic relationship with the service users I work with. This has been crucial in my work as I have to be able to quickly establish a rapport with service users, in order for them to feel safe and engage in psychological interventions. As I have never worked with children, I was aware of having a bias of working with only the adult client group, but also of having the opportunity of having several months to establish a rapport with a client, something which was not possible in this study.

As part of the reflective process, I also thought about where my interest for the research topic came from. Prior to and during the forensic course I have worked on a low secure ward for women with personality disorder, as well as worked on high dependency rehabilitation units for women with trauma related disorders such as PTSD and CPTSD, as well as those with dissociative disorders. A significant number of these women have experienced childhood abuse, as well as had difficulties with self-harm. As such, I was

mindful of further bias in relation to what service users had previously shared with me, as well as literature and training I had engaged with around this. For instance, the reasons clients had shared with me in the past as to why they self-harm, or factors which can trigger them to self-harm. Working in a clinical setting meant I may tend to start formulating the participants' difficulties as they were talking, rather than just listening and understanding it from their perspective. As such, I was extremely mindful of this during the interviews and made a significant effort to just listen and be open to what was being told to me.

The unit I was conducting the research in, was also my place of work. As such, I reflected on whether this would influence participants to be more reserved in their answers, or more open as they know me to a certain extent (although I didn't work directly with them). During interviews, I found that service users were generally open with me from the start and were direct and candid with the answers. On reflection, I believe it's because they were aware I worked in a service with significant levels of self-harm, and therefore, they may have felt less judged in their answers. However, I also thought about the power imbalance that the participants might experience in terms of the interview, given they are already detained in hospital under various sections of the mental health act and therefore, are unable to leave should they wish. I wondered whether they might view attending an interview within the hospital an extension of this. As such, I made a conscious effort to make the interview as informal as possible, as well as emphasising to participants' that it is up to them what they want to share. Interestingly, most of the participants appeared happy to talk about their experiences, and described it as almost empowering to be able to contribute to research and felt like they were being heard and their views on self-harm actually mattered.

I reflected on my position as a female researcher, conducting interviews with female participants. I did wonder as to whether this might have been more of a positive experience for the participants, in terms of feeling more comfortable during the interview process. I was

extremely mindful that all women had a history of sexual trauma from men and even though I never directly asked about their experiences, several of them often made links or volunteered information around their experiences of abuse. It did make me wonder whether they would have been so open should it have been a male researcher, given they're all survivors of sexual trauma from a man.

That said, some of the women were quite matter of fact about the abuse they had endured, as well as their self-harm experiences. They did not appear to be overly upset when talking about it and I did wonder whether there might be a disconnect between their thoughts and feelings, especially given some of them spoke about feeling "numb" a lot of the time. I did also acknowledge the fact they are in hospital for treatment, which involves talking about said experiences, so perhaps they had just gotten used to talking about such topics with professionals and saw me as an extension of this.

I also thought about my position as a younger woman of a similar age to some of the participants, as well as being from a similar background as most i.e. a working class family in Yorkshire. I wondered whether this also aided the interview process and allowed the participants to feel more comfortable in talking about their general experiences and lives growing up. I did reflect on how different our lives were, with myself being fortunate enough to not have experienced any form of childhood abuse or trauma. Given the traumatic experiences that the women had been through, it was admirable that they were all able to establish a warm rapport quickly, as well as display a good sense of humour.