Scotland's Suicide Prevention Action Plan

National Suicide Prevention Leadership Group
Every Life Matters Suicide Prevention Action Plan
Academic Advisory Group

Identifying and facilitating preventative actions targeted at risk groups: A rapid synthesis of the scientific evidence (Action 7)

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1. Context

Action 7 of the *Every Life Matters* Suicide Prevention Action Plan (Scottish Government, 2018) states that the National Suicide Prevention Leadership Group (NSPLG) will identify and facilitate preventative actions targeted towards at- risk groups and. It will consider how the risk of suicide is elevated for groups within the broader general population, identifying specific actions to address this. Based on this action, the NSPLG's first annual report included a recommendation proposing that "the Scottish Government should fund additional engagement targeted at groups of people with characteristics and experiences which may indicate elevated risk of suicide" (Recommendation 11; Scottish Government, 2019).

On 15th January 2020, the Action 7 Delivery Lead, Carolyn Lochhead requested the Academic Advisory Group (AAG) to prepare a rapid synthesis of the current evidence base regarding interventions which are more or less likely to be effective for groups who are at higher risk of suicide. These groups were defined by risk factors outlined within the Integrated Motivational-Volitional Model of Suicidal Behaviour (IMV; O'Connor & Kirtley, 2018). In this context, the AAG has conducted searches within the scientific literature and prepared the present rapid synthesis of the evidence to respond to this request. These are not systematic reviews.

2. Aims

To provide an evidence base for the identification of at-risk groups in Scotland and for the preventative approaches and interventions that are effective among these groups.

3. Research questions and synthesis structure

The present rapid synthesis is structured in four sections according to the research questions requested by the Action 7 Delivery Lead:

- Who are the existing at-risk groups of suicide and self-harm in Scotland?
- Do the risk factors outlined by the IMV model (experience of defeat, humiliation and entrapment) vary by population group or community?
- What existing preventative approaches and interventions are effective in preventing suicide and self-harm among at risk groups?
- What gaps are there in our knowledge of preventive interventions for at risk groups?

4. Methods

The searches for relevant evidence were undertaken by means of rapid literature review. The appendix sets out the search strategies for each research question including bibliographic databases, key search terms, number of records, and other relevant details. The searches covered (non-fatal) self-harm as well as (completed) suicide. It therefore follows that some of the evidence about at-risk groups relates to the risk of self-harm rather than suicide.

In the current review, *suicide attempt* is defined as a non-fatal, self-directed self-harming episode associated with evidence of suicide intent (O'Connor et al., 2013). *Suicidal ideation* is understood as having thoughts of suicide, including a range of internal experiences such as intention or motivation to kill oneself, having a suicide plan, or experiencing suicidal feelings (Silverman, 2006). *Self-harm* refers to any act of self-injury or self-poisoning carried out by an individual, irrespective of their motivation (NICE – National Institute for Health and Care Excellence, 2013). Following the NICE guidelines definition, self-harm is not used to refer to harm resulting from overeating, body piercing, body tattooing, excessive consumption of alcohol or recreational drugs, starvation arising from anorexia nervosa or accidental harm to oneself (National Institute for Health and Care Excellence, 2013).

Although in suicide research the term *suicidal behaviour* can be used as a broad term that may include a continuous process from thoughts to acts (Silverman et al., 2007), *suicidal behaviour* and *suicide attempt* are used interchangeably in the current review.

For the purposes of the current rapid review, the following types of publication were included for consideration only:

- Reviews (i.e. systematic reviews, meta-analyses, rapid reviews, and scoping reviews) of empirical studies;
- Quantitative and qualitative empirical studies;
- Government and policy documents, and charities' reports on suicide and mental health;

5. Results

5.1. Who are the existing at-risk groups of suicide and self-harm in Scotland?

Establishing who is at risk of suicide is a challenging task due to the interplay of factors, each increasing or decreasing the emergence of suicidal thoughts and behaviour. Traditionally, the identification of vulnerable groups has been reported by

epidemiological research through a retrospective analysis of the dispersal (who, when, and where), patterns, and determinants of mental health and socioeconomic conditions among those who died by suicide, attempted suicide, or experience suicidal thoughts. Based on epidemiological data and grey literature reports (LGBT Youth Scotland, 2017; NHS Health Scotland, 2014; NHS Scotland, 2017; Samaritans, 2017), Scotland's Suicide Prevention Action Plan (SPAP) lists a range of risk factors and groups of individuals that may be at risk of suicide. These include: history of self-harm, bereavement from suicide, adverse childhood experiences (ACES) and later trauma, deprivation, poverty, and social exclusion, isolation, living with or developing an impairment or long-term condition, middle aged men, people affected by drugs and/or alcohol, migrants, lesbian, gay, bisexual and transgender (LGBT) adults and young people, gypsy/travellers, homelessness. These are consistent with those risk factors and groups of individuals identified by the World Health Organization (2014), and a large body of literature on suicide risk (Franklin et al., 2017).

To address the current research question, we conducted a search of empirical papers published in the past 20 years that investigated the groups and factors associated with suicide deaths and attempts, and self-harm in Scotland (see Search Strategy 1 in the Appendix). This yielded a total of 20 studies as displayed in Table 1 (Appendix - suicide-related studies with focus on Scotland). Most of the studies (n = 16) investigated the factors associated with suicide retrospectively by linking suicide records data with health/hospital and socioeconomic indicators. The most common groups identified were those exposed to deprivation or socioeconomic inequalities (studies 3, 5-8, 10, 11, 13, 15, 17, 19, 20). As vulnerable groups, the studies also identified individuals who had reported a history of mental health issues and drug-related problems (1-4, 11, 12, 14, 16-18), childhood adverse experiences and negative life events (3, 4, 12, 20), being male (5, 6, 10, 19, 20), living in remote rural areas (5, 10), suffering from psychological issues (e.g., being unable to cope with social circumstances, emotion dysregulation issues, interpersonal difficulties) (1, 20), incarceration (3), and having a chronic and serious physical health condition(s) (9).

Although these studies focused specifically on Scotland, their findings are neither new nor surprising, since the at-risk groups described in each of those papers are recurrently identified in traditional epidemiological studies in suicide research (Frankin et al., 2017). In addition, these groups and related factors were also highlighted as important for suicide prevention in the research documents mentioned in the Scotland's Suicide Prevention Action Plan (LGBT Youth Scotland, 2017; NHS Health Scotland, 2014; NHS Scotland, 2017; Samaritans, 2017), including more recent reports such as the ScotSID Annual Report (NHS Scotland, 2018) and the National Confidential Inquiry (NCISH) Annual Report (National Confidential Inquiry into Suicide and Safety in Mental Health, 2019). The NCISH, for example, pointed out that in 2017 there were 866 suicides by patients who had a history of alcohol or

drug misuse, accounting for 57% of all patient suicides UK-wide, with this rate being higher in Scotland.

Although our search found higher risk for individuals with a record of mental illness, the ScotSID (NHS Scotland, 2018) data indicate that most people who die by suicide in Scotland have no contact with specialist mental health services in the 12 months before their death. This raises concerns about a possible disparity between the mental health needs of at-risk individuals and the provision of services that meet those needs. As there are many challenges to identifying at-risk groups – since the list of vulnerable groups based on epidemiological factors is long (Frankin et al., 2017) – we purpose that at-risk groups should be understood as any of those who are/were exposed to life events, contexts, and experiences that lead to psychological distress characterised by perceived defeat/humiliation (including shame, rejection, and discrimination) and entrapment – key drivers of suicidal ideation and intent (O'Connor & Kirtley, 2018).

Summary

- The list of at-risk groups identified by the SPAP are consistent with those identified by the World Health Organization, and a large body of literature on suicide risk.
- Our search indicates that the most common groups at risk of suicide and self-harm in Scotland were those exposed to deprivation or socioeconomic inequalities, as well as those groups already specified by the SPAP.
- There are challenges to identifying at-risk groups based on epidemiological classifications (e.g., some people at risk of suicide may be not included in those groups).
- We propose that at-risk groups should be understood as any of those who are/were exposed to life events, contexts, and experiences that lead to perceptions of defeat and entrapment – key drivers to suicide risk.

5.2. Do the risk factors outlined by the IMV model (experience of defeat, humiliation and entrapment) vary by population group or community?

Consistent with the wider psychological literature, there is limited research investigating the risk factors outlined by the IMV model at the population level. However, in order to estimate which population groups or communities are more likely to feel defeated/humiliated, entrapped, and suicidal, we searched for empirical papers and reviews published in the past 20 years that investigated those risk factors. Details of the search procedures are outlined in the Appendix (see Search Strategy 2).

A total of 47 articles were found to be relevant for this research question (details of the studies are available in the appendix Table 2) and were grouped according to 5 categories of populations: *Clinical Populations* (12 studies: 21-32), *General Population* (8 studies: 33-40), *Students and Young People* (11 studies: 42-52), *Mixed Populations* (6 studies: 53-58), and *Minority Groups* (10 studies: 59-67). The majority of the studies (45%; n = 30) had a cross-sectional design[1], and over a half (53%, n = 35) were published in the past 5 years.

Considering that defeat, humiliation, and entrapment are transdiagnostic human experiences, there is no evidence suggesting that these factors are exclusively associated with a specific group or population; rather, they are associated with contexts, situations, or environments in which those feelings arise (O'Connor & Kirtley, 2018). Therefore, the purpose of the following sections is to organise the selected studies and provide an approximation to the aims of research question 5.2.

Definitions*

Defeat

Defeat can be understood as a sense of failed social struggle, loss and reduced social rank (e.g., humiliation, shame, rejection, discrimination). Such subjective perception may be directly associated with interpersonal issues and conflicts, but it also may be related to a sense of failure in obtaining resources (either material or social).

Entrapment

Also conceptualised as 'arrested flight', entrapment is characterised as a constrained perspective (or lack) of solutions and exits from an unbearable context or situation. It involves a strong wish to escape from the aversive context, with the sense that all escape possibilities are blocked.

*O'Connor & Kirtley (2018)

[1] A cross-sectional method is a type of observational study in which researchers measure the outcome (e.g., levels of suicidal ideation) and the exposures (e.g., experiences of humiliation) in the study participants *at the same point in time*. One of the main limitations of cross-sectional studies is the difficulty of establishing temporal sequence and therefore causal links between exposures and outcomes. For more information on cross-sectional designs, see Arnett and Claas (2017).

5.2.1. Clinical Populations

Nine studies (23-31) assessed defeat and entrapment in clinical groups, including individuals diagnosed with bipolar disorder, post-traumatic stress disorder (PTSD), and schizophrenia spectrum disorders, patients admitted to emergency departments for self-harm, adolescents in inpatient psychiatric units, patients suffering from chronic pain, and women seeking psychiatric treatment who had been subject to intimate partner violence. Despite the differences between the studies, the overall findings suggest that both defeat and entrapment are strongly associated with self-harm, suicidal thoughts, and suicide attempts, regardless of a previous history of suicidal ideation, self-harm, and other comorbidities.

The factors associated with the emergence of defeat and entrapment in the context of mental health issues may vary considerably. For example, Clarke and colleagues (23) assessed patients who presented to emergency departments for self-harm. When presented with a 12-item tick list, patients identified a range of people or situations that they wanted to escape from (i.e., perceptions of entrapment) prior to the episode of self-harm. The most common form of entrapment was being trapped by their own thoughts and feelings (i.e., 'internal entrapment') (83%). Other sources of the desire to escape included: isolation (57.4%); money problems (59.3%); an illness (46.3%); parents (35.2%); family (33.3%); job (34.0%); partner (18.5%); friends (13.0%); neighbours (13.0%); children (5.7%); and other (18.2%).

Three studies operationalising defeat and humiliation as shame and rejection were included. Sexually abused adolescent girls with PTSD (21), adolescents admitted to a psychiatric facility (22), and people with a diagnosis of body dysmorphic disorder and obsessive-compulsive disorder (32) were the main groups assessed. These studies indicated that traumatic experiences (e.g. sexual abuse, rejection life events) are strongly related to shame and suicidal thoughts. Study 22 suggests that life events featuring rejections have a cumulative effect on suicide risk over time: this effect remained strong even after considering other risk factors, such as a previous history of suicidal ideation, depressive symptoms, sex, age and number of stressors not characterised by rejection.

In fact, even experiences of rejection/humiliation in the context of service provision may increase suicide risk among vulnerable people. Two systematic reviews (Pompili et al., 2005; Saunders et al., 2012), focusing on attitudes of medical staff towards people who self-harm (suicide attempt included) revealed that their approach, especially doctors, were largely negative, predominantly towards those who repeatedly presented to hospital due to self-harm (Saunders et al., 2012). From the clinical staff's perspective, self-harm patients were viewed more negatively than other patients, except those presenting with alcohol or drugs problems. The studies reviewed by Saunders and colleagues (2012) also indicated that, for general hospital

staff, negative attitudes were more common among doctors than nurses. Studies have shown that those attitudes (including clinical staff's conflicting emotional responses to high-risk patients) was cross-sectionally (Yaseen et al., 2013) and longitudinally (1-2 months; Yaseen et al., 2017) associated with patients' subsequent suicidal behaviour, independent of traditional risk factors. However, Saunders and colleagues (2012) found evidence that active training led to consistent improvements in attitude and knowledge in all groups of medical professionals.

5.2.2. General Population

Four studies (33, 35, 39, 40) recruited participants from the general population through online surveys and measured the constructs of defeat and entrapment. The main aim of these studies was to investigate the relationship between psychological factors (e.g. perceived burdensomeness, mental images of suicide, self-acceptance, social comparison) and defeat, entrapment, and suicidal ideation. These studies provide evidence for an existing association between defeat, entrapment and suicide risk in non-clinical samples. It is important to mention that women were overrepresented in most of these studies, raising the concern of self-selection bias[2].

Four other studies investigated the role of shame as a risk factor for self-harm (34, 37, 38) and suicide-related behaviours (36). Similar to the previous studies mentioned above, the studies focusing on self-harm recruited a higher number of woman (study 37's sample is entirely female), and found that shame-proneness (i.e., having a higher sensitivity and proneness to experience shame) is cross-sectionally[1] associated with self-harm. On the other hand, study 36 was conducted exclusively among men and revealed that difficulties in identifying and describing their emotions and corresponding distress are mostly particularly explained by shame (which promotes concealment of a perceived defective self). In the same study, guilt was more salient for men's suicide-related behaviours.

5.2.3. Students and Young People

Of the studies included in this section, the population age range covered secondary and high school adolescents (43, 45, 46, 52), and university students (42, 44, 47, 48, 49, 51). One study investigated the IMV risk factors with a national representative

[2] Self-selection bias consists in representative inaccuracy in the data when: 1) the decision of taking part in a research survey is entirely made by the participants; 2) participants' propensity to take part in the study is correlated with the topic of research being investigated; 3) participants do not represent the target population. Example: a higher number of people who suffer from suicidal ideation may participate more in a survey on the topic of suicidal ideation, with reduced number of controls. For more information on self-selection bias, see Olsen (2008).

sample of young people in Scotland (41). An additional psychological autopsy[3] study with parents of adolescents who died by suicide was also included (50) given its importance to understand young people's suicide.

Four studies aimed to understand younger adolescents' self-harm and suicide risk by investigating the role of rejection (43), defeat and entrapment (45, 46), and shame (52). Study 43 found that being involved in bullying (as bullies, victims, or bully-victims) and being rejected by peers may contribute to increased risk of engaging in self-harm at least once. Other studies (45, 46, 52) focused on psychological processes associated with defeat, shame, and entrapment in relation to and their subsequent effect on risk of suicide and self-harm. Study 45 found that adolescents with low self-esteem are more likely to feel suicidal when they experience high levels of entrapment. Study 46 (Scottish adolescents) showed that perceptions of both defeat and entrapment were elevated in young people who reported clinically salient insomnia and/or nightmares, relative to those who did not. Study 52 reported the indirect effect of external shame, hated self, and fear of self-compassion over self-harm, through daily peer hassles and depression. Although these findings are informative in terms of contextual and psychological factors associated with adolescents' risk of suicide and self-harm, it is important to highlight that these four studies (43, 45, 46, 52) are cross-sectional, which constrains claims of causal relationships.

The studies focused on university students assessed defeat and entrapment (42, 44, 47, 48) and shame (49, 51). Studies 44, 47, and 48 suggest that psychological constructs such as decreased positive future thinking, poor problem-solving skills, and low social support are associated with high levels of suicidal ideation in the presence of defeat and entrapment experiences. The studies investigating shame found similar results: shame-proneness was associated with higher frequencies of self-harm. Study 51 reported that shame-proneness was uniquely associated with self-harm frequency beyond other negative emotions. Their results also suggest that negative urgency (impulsive when feeling negative emotions) exacerbated shame-proneness, increasing vulnerability for self-harm engagement and frequency.

Using a daily diary across 17 days, study 42's researchers assessed participants who self-harm. Among several findings, they reported that entrapment beliefs were increased on self-harm days compared to days without self-harm. This confirms that entrapment may be relevant in self-harm as well as in suicidal thoughts and behaviours.

Study 41 interviewed a nationally representative sample of young people (18–34 years) across Scotland. The authors investigated how different groups of youth

[3] Psychological autopsy is a systematic research method to investigate and understand the psychological and contextual factors preceding an individual's suicide, requiring interviews with one or more proxy respondents (i.e., informants) of decedents (Conner et al., 2011). For more information on psychological autopsy, see Conner et al. (2011).

experience the IMV risk factors and found that defeat and entrapment were higher among people with a history of suicidal ideation or behaviour when compared to those who have never thought about suicide (healthy controls). The study also found that individuals reporting a suicide attempt were higher on acquired capability (capacity to attempt suicide), mental imagery about death, impulsivity, and being more likely to know a friend who had made a suicide attempt.

Finally, through a psychological autopsy method[3] (interview of parents of adolescents who died by suicide), study 50 reports experiences of entrapment for both the deceased teenagers and their parents: finding no way out, the young persons looked for an “emergency exit”. The young people and their parents asked for professional help but did not receive the help they needed. Signs and preparations for suicide could be observed at different times but they were only recognised in retrospect.

5.2.4. Mixed Populations

Most studies included in this section are reviews of empirical studies (scoping reviews, systematic reviews, and meta-analysis: 53-60), with one case-control cross-sectional study included (58). Considering the large variety of population groups included in the reviews, it is difficult to detail the specifics of how defeat, humiliation, shame, and entrapment may impact differentially across sociodemographic groups. Therefore, the results presented here report the general findings from the reviews (except for study 58).

Pertinent to this question, perceived parental rejection and rejection sensitivity were identified as important risk factors associated with self-harm in review 53. This seemed to be particularly evident for marginalised societal groups (i.e., LGBTQ+) who may experience more rejection as a result of discrimination or a lack of acceptance by wider society.

A second scoping review (54) critically discussed the current evidence investigating the relationship between entrapment and suicide risk, mostly identifying empirical support for this association cross-sectionally and longitudinally across a range of groups. However, the authors raised critical points: it is still unknown whether entrapment is a culturally sensitive construct, if it is more pernicious in men versus women, and whether it is more harmful at different stages in life.

Systematic review 55 focused on the relationship between shame, guilt and self-harm, concluding that most forms of shame were associated with non-suicidal self-injury, although research was sparse concerning suicidal behaviour. The authors recommend that shame should be considered during psychological assessments with those who self-harm.

Two other reviews (56, 57) focused specifically on the role of defeat and entrapment and their association with suicidal thoughts and behaviours. Review 56 concluded that perceptions of defeat and entrapment are clinically important in depression, anxiety problems, PTSD, and suicide risk. The authors argued that the strong relationship across these four different psychiatric disorders could suggest that perceptions of defeat and entrapment are transdiagnostic constructs. Reporting similar results, review 57 adds that defeat and entrapment may have a proximal role in the mechanisms underlying suicide. It may be that these constructs mediate the effects of other environmental (loneliness, abuse, and neglect) and psychological (positive psychotic symptoms, negative self-appraisals, low self-esteem) factors on levels of suicide risk. These observations made in review 57 are supported by cross-sectional data within study 58 in which the relationship between rumination (psychological factor) and suicidal ideation is explained by perceptions of entrapment.

5.2.5. Minority Groups

Nine studies (59-67) investigated how variations in defeat (e.g., shame, humiliation, discrimination) and entrapment impacts on minority groups. Four studies (60-62, 64) focused on sexual and gender minorities, mostly describing the impact of rejection, shame, and humiliation on increased levels of suicide risk and self-harm. Study 60 reported the results of a large national survey among transgender individuals in the US, with results indicating an extremely high prevalence of suicide attempts among participants (42.3%). Over a quarter of the research participants reported misusing drugs or alcohol to cope with transgender-related discrimination. The survey also showed that family rejection was associated with increased odds of both behaviours (suicide attempt and drug use) independent of age, race/ethnicity, sex assigned at birth, binary gender identity, income, education, and employment status. Study 62 reported similar findings for sexual minorities, in which heterosexist victimisation, shame, and rejection sensitivity were significant risk factors for suicide. When comparing IMV risk factors between heterosexual and LGBTQ+ sample, study 64 (conducted in Scotland) found that heterosexual individuals reported significantly less defeat, entrapment, and suicidal ideation and intent compared to bisexual, gay, lesbian, and other sexual minority (e.g., pansexual) persons.

Focusing on other mechanisms of coping with shame and humiliation, study 61 suggested that young LGBTQ+ people seem to negotiate homophobia through shame-avoidance such as routinising and minimising homophobia, maintaining individual ‘adult’ responsibility, and constructing ‘proud’ identities. According to the authors, these strategies of shame-avoidance suggest that young LGBTQ+ people manage homophobia individually, without expectation of support and, as a result, may become vulnerable to self-harm and suicidal behaviours.

Two studies focused solely on either female (63) or male (66) prison inmates. The first study found that women reporting self-harming behaviours were significantly more likely to have experienced childhood abuse (particularly sexual abuse) and report higher levels of all facets of anger and shame assessed (particularly bodily shame) when compared to inmates without a history of self-harm. The study conducted among male prisoners reported that defeat and entrapment were associated with self-harm in prison (4 months after the first assessment), independent of a history of self-harm, depression, and hopelessness.

Other studies investigated variations in defeat (i.e., failure, shame, and discrimination) and entrapment among Australian farmers (59), Israeli soldiers (65), refugees, asylum seekers and immigrants (67). The first study found qualitative evidence suggesting that farmers in economic crisis are subjected to shaming by their communities. This may be related to farmers feeling that they have left down their community by not maintaining the productivity of their farm. The feelings of shame and failure seem to be associated with increased suicide risk. Among Israeli soldiers, study 65 reported cross-sectional data indicating that experiences of entrapment may exacerbate the harsh situation of subjective stress within the military context and intensify suicide risk.

The final study looking at refugees, asylum seekers, and immigrants suicide risk was a systematic review (67). Among several findings, the review reported study results showing that language, employment, and service barriers (e.g. lack of knowledge and mistrust of mainstream services, lack of appropriate services) and fears about immigration status contribute to suicide behaviours, including attempts, as well as limiting help-seeking. Wider systems of discrimination (e.g. institutional and societal) also impact suicidal thoughts and behaviours.

5.2.6. A brief note on intersectionality and suicide risk

Intersectionality theory (Crenshaw, 1989) is a conceptual framework that increases understanding on the links between individuals' multiple identities. It takes into account how those social and cultural identities such as gender, race, sexuality, class, disability, and educational level interact and allow the development of unique experiences across domains and outcomes in every facet of one's life. The use of intersectionality theory to understand the emergence of and increase in suicide risk is relatively new in the field of suicide research (Standley, 2020). Some studies, however, indicate that such a framework can be useful to disentangle the complexity of structural and political issues associated with the emergence of suicide risk (Bostwick et al., 2014; Garnett et al., 2014; King et al., 2018). For example, although there is strong evidence showing that LGBTQ+ individuals are more likely to attempt suicide in comparison to their heterosexual peers (64), research also suggests that such a risk can increase 5-fold for gay and bisexual men with lower income and

educational level (Ferlatte et al., 2018). The same rationale applies to gender (e.g., male gender in interaction with poverty, relationship issues, and isolation).

Discussing their intersectionality analysis of suicide risk among gay and bisexual men, Ferlatte and colleagues (2018) state that “clinicians and policymakers need to be cued to thoughtfully consider and address issues related to poverty, access to education, and employment security and how these issues intersect with sexuality” (p. 1519). These assumptions are in line with the premises of the IMV model[12] which proposes that suicide risk should be understood in the context of life events and social conditions that facilitate experiences of defeat and entrapment.

Summary

- Defeat, humiliation, and entrapment are transdiagnostic human experiences and there is no evidence suggesting that these factors are exclusively associated with a specific group or population.
- Defeat, humiliation, and entrapment are associated with contexts, situations, or environments in which those feelings arise.

5.3. What existing preventative approaches and interventions are effective in preventing suicide and self-harm among at risk groups?

The search strategy for this review is summarised in the Appendix (Search Strategy 3). Studies were limited to reviews published in a peer-reviewed journal within the last 20 years (however only reviews from 2010-20 were returned). Thirty-one studies were deemed applicable to this review. Nine reviews included randomised control trials (RCTs) with comparison groups most often being treatment as usual (TAU) or enhanced TAU control groups. Citation chaining was used while screening papers, resulting in one additional paper being included (98).

Results are summarised below and grouped by intervention. Where appropriate, these interventions are further split between direct and indirect interventions. Direct interventions pertain to interventions which are introduced to the participant in an immediate fashion, indirect interventions are those introduced by passive exposure or through a secondary source (e.g. a teacher to support students). Detailed information about each study, including their abstracts, is presented in the Appendix (Table 3).

5.3.1. Direct therapeutic interventions

Direct (face to face) therapeutic interventions, including cognitive-behavioural therapy (CBT; Table 3: 68, 70, 70, 74, 76, 77, 83, 87, 94, 96), dialectical behaviour therapy (DBT; 70, 72, 74, 81, 83, 87, 96), mentalisation (n = 5; 68; 72; 77; 83; 87), and interpersonal therapy (96, 97), were the most commonly reported treatment approaches to reduce suicidal ideation or behaviour.

5.3.1.1. CBT

CBT was shown to consistently and significantly reduce suicidal ideation and self-harm (87), particularly in older populations (87) and females (81). There was evidence that the protective effects of CBT may last up to 12 months post-intervention for suicide attempt (76) and up to 6 months for suicidal ideation (74). Follow-up was continued beyond these time points with no significant effects observed. Reduced suicidal ideation and behaviour were most commonly observed following up to ten (average of 5) clinical CBT sessions. These findings suggest that CBT may have a longer effect on suicidal behaviour rather than ideation; however, follow-up interventions are required to maintain these effects beyond 12 months. Recommendations from reviews which include direct CBT interventions are

consistent in advocating CBT as an effective intervention for the prevention of both suicidal ideation (70, 72, 87) and suicidal behaviour (74, 87).

5.3.1.2. DBT, Mentalisation and Interpersonal Therapy

DBT was particularly effective for adolescents (77) and women with a diagnosis of borderline personality disorder (81) in reducing both suicidal ideation and behaviour to degrees similar to those reported above for CBT. By comparison, the effects of mentalisation therapy remain unknown due to insufficient, statistically robust evidence (77).

5.3.1.3. Familial / Peer therapy

There is some support for family therapy (72, 94). However, the standard of these studies was typically of a lower quality than others in this review. Despite this, Flaherty (2017) recommended that family therapy would be an effective 'add-on' to individual therapy. Similarly, youth-nominated support (YSR-1; 68, 70, 81, 87) includes the involvement of a nominated adult selected by the adolescent patient. Often, though not exclusively, this nominated adult was a family member (e.g. parent or grandparent). YSR-1 was shown to be more effective than direct therapeutic care without systemic involvement from a nominated adult (68, 81). This intervention was found to be particularly effective for adolescent females in reducing suicidal ideation (81) as well as pre-adolescent suicide attempts (70).

5.3.1.4. Commonalities between interventions

Of the reviews which reported commonalities across psychological interventions, problem-solving was the most common skill applied (69, 70, 74, 76, 77, 83, 94, 97). Only Bulotiene and Pociute (2019) reported the distinct and significant role of problem solving in reducing suicidal ideation. However, most other studies were based on the general population, while Bulotiene and Pociute (2019) exclusively recruited oncology patients. Other reviews reported difficulty in identifying which of the individual skills introduced during CBT and DBT have the maximal effect in reducing suicidal ideation or behaviour.

Therapies which included a socially driven component, including strengthening family or social support networks (68), group therapy to facilitate peer support (70, 72), or communication skill development (83), were also regularly included in effective interventions. Zappegno et al. (2019) reported Interpersonal Therapy reduced suicidal ideation and depression in older populations as well as improving social adjustment and enjoyment of social and leisure activities. Adolescents also seemed particularly responsive to socially inclusive therapies, namely peer group therapy (72) or parent-child supports (e.g. Adolescent Parenting Programs; 68, 77) for fostering acceptance and support-adaptive behaviour. Adolescent group therapies and programmes have also been associated with reduced suicidal events as well as secondary outcomes including protection from alcohol or substance

misuse (68). Calear et al. (2016) reported that individual direct therapy was effective in reducing suicidal ideation, while group and family programs reduced suicide attempts. Multiple reviews (68, 70, 70) advocate that programmes which used a combined approach were effective in reducing both suicidal ideation and attempts in adolescent populations, with significant differences reported when compared to control participants at the follow-up (18 months; 70). Busby et al. (2020) recommended that future interventions should include pre-adolescents (10-14 years), thereby equipping young people with the tools to protect their physical and psychological health before developing suicidal ideation or behaviour. Brent et al. (2013) further argued for the need of interventions targeting substance abuse and sobriety as well and sleep hygiene to reduce self-harm and suicide attempt in adolescents.

5.3.1.5. Summary

With the exception of CBT, follow-up data for all forms of therapeutic approaches discussed above are lacking, as well as the need for standardised research designs. Ingaki et al. (2015) advocated for the standardised use of medical records for follow-up data due to the significant attrition rate from patients engaging in studies post-baseline.

All studies reported positive effects following intervention. Those which did not report statistically significant improvement in primary outcome variables (suicidal ideation, behaviour, attempt or death) reported significant improvements in secondary outcomes (e.g. mood, anxiety or substance misuse).

Overall face-to-face interventions seem to be an effective form of suicide intervention therapy, with greater results in select population groups (females and older generations) more than others. Therapies which include problem-solving or improvement in communication and coping skills through individual face-to-face work, dyads or group work are the most widely reported effective approaches, with further research required on mentalisation therapy.

5.3.2. Community-based interventions

5.3.2.1. Direct interventions

Direct community-wide interventions primarily included psychoeducation, gate-keeper training and screening for depression (70; 73). These interventions appeared to be particularly effective in reducing suicide behaviour and ideation in females and elderly populations. Despite the reach of community-wide interventions, suicide death rates were not always reduced significantly, with reports that these interventions often failed to reach targeted groups (73). Community-based

interventions did not reduce suicide death but did reduce self-harm behaviours of adolescent populations.

5.3.2.2. Indirect interventions

Pirkis et al. (2015) was the only review to investigate community-wide indirect interventions, specifically encouragement of help-seeking (provision of phones or telephone numbers at suicide hotspots), increasing interventions of third-parties during crisis (increased presence of police or bridge staff, increased CCTV observations) and means restriction (predominantly jumping from a height). Three of these four studies found this to be an effective intervention approach. However, one study (Stack, 2012) found an adverse effect where suicide deaths increased following telephone installation, although encouragement of third-party involvement seemed to be effective in reducing suicide deaths. Restriction of means was the most common form of community-based intervention (n = 11 studies) and included installation of fences and nets around high areas with public access. Means restriction of this nature was found to significantly reduce suicide death, though reduction in suicide attempt at these sites was not reported.

5.3.3. Targeted active outreach / token systems

Distal token systems (74, 81, 83, 85, 94) operate by using a remote form of intermittent, non-face-to-face contact and function as a way of reminding the individual that they are cared for by another person. Tokens can take the form of postcards, emails and letters and have shown some evidence for reducing all suicide behaviours (self-harm, suicide attempt and suicide death) compared to TAU in both men and women. However, Hawton et al. (2016) found that in smaller trials this effect was not significant at 12-month follow-up. Significant concerns regarding token systems were reported by all authors within these reviews, specifically due to insufficient observation and contact with such high-risk individuals. Although this work seems promising, safeguards are not yet in place to support these populations effectively (85).

5.3.4. School based interventions

5.3.4.1. Direct interventions

School-based programmes (70, 75, 90, 91, 94) targeting students had mixed results (70, 91, 94). Pistone et al.'s (2019) tentative conclusion was that 'school-based interventions probably do have a preventative effect on suicidal ideation.' This was also upheld by Calear et al. (2016) who found just over half of targeted school-based interventions were effective. Hom et al. (2015) found that following the intervention,

peers reported greater confidence in knowledge and confidence in ability to intervene when a peer indicates they are at risk of suicidal behaviour. Conversely, Silva et al. (2013) reported some adverse postvention outcomes, where more males reported considering suicide as a possible solution to problems or reported an increase in hopelessness. By comparison, Calear et al. (2016) reported direct school-based interventions were more effective in female populations. Pistone et al. (2019) suggested future school-based interventions may benefit from the target population receiving gatekeeper training to facilitate engagement with services. Pistone et al. (2019) suggested this may be more effective than providing gatekeeper training to faculty members while no intervention is provided to the students. The one consistent finding from universal school-based interventions was that they improved staff and student confidence in supporting their peers/ students (for staff this included assessment, referral and postvention). Overall, school-based interventions were most effective when a targeted/ indicated population approach was used.

5.3.4.2. Indirect interventions

In-direct school-based interventions included gatekeeper training (e.g. upskilling school faculty with knowledge of signposting or suicide risk assessments; 75, 88, 90), which showed potential as a tool for reducing suicide attempt and ideation. Research by Pestaner et al. (2019) specifically reviewed school nurses trained as gatekeepers. While the results showed reduced reports of student suicide death, these studies were too underpowered to determine a statistically significant effect. However significant improvements were reported for student health and education. The role of school nurses in preventing student suicide death remains unclear due to the integrated teams in which they work. Furthermore, studies included by Piston et al. (2019) investigating the reduction of suicidal ideation via use of gatekeepers was also underpowered and therefore statistical analysis could not be conducted. Finally, the longevity of the gatekeeper interventions was unknown due to the brief follow-up period.

5.3.5. Peer interventions

Peer interventions were mentioned in two reviews (96, 98). Winters et al. (2017) reported that a Samaritans-facilitated befriending service significantly reduce suicide attempts in prison populations. However, suicide death rates returned to pre-intervention levels once the intervention was terminated. In contrast Wasserman et al. (2015; 98) found that the Youth Aware Mental Health Program (YAM) for adolescents which predominantly includes role-play with peers (along with a psychoeducational workbook and lectures), was associated with a statistically significant reduction in suicide attempt in the YAM group compared to TAU controls at 12-month follow-up. Additionally, at three-month follow-up the YAM group did not

differ to controls in terms of reports of suicidal ideation while there was a significant reduction in the YAM group at 12-month follow up. This suggests there may be a lag in the effects of YAM in reducing suicidal ideation in adolescents who receive the YAM intervention.

5.3.6. Technology-based interventions

Reviews which evaluated the efficacy of technology-based interventions included mobile phone apps (78, 84, 93, 96), 24-hour CCTV patient monitoring (96), telemental health (e.g. video calling; 78, 87, 92, 93), email (93), telephone-based therapy (85, 93) and internet groups (78, 80). CCTV patient monitoring was found to be highly effective in reducing prison suicide. However, the review highlighted that the economic cost of this intervention may be unacceptably high. Mobile apps were found to be particularly effective for those with reduced help-seeking behaviour (84) and was associated with reduced suicide attempts (78). It was argued that unlike other interventions, apps and other technology-based suicide interventions have a greater potential to reach target populations (79). However, two reviews (79, 84) concluded that, while these interventions were associated with improved coping and mood, suicidal ideation did not significantly improve compared to controls at follow-up. Based on 16 studies, Kreuze et al. (2017) concluded that technology-enhanced interventions (in addition to direct therapy e.g. internet groups or CD-ROM information guides) did not reduce suicidal ideation or behaviour to the same degree as in-person interventions; rather, they were found to be particularly effective for secondary outcomes, including depression and anxiety, with sustained results (79).

The efficacy of technology-based interventions remains unknown due to a lack of RCTs. Findings of psychotherapy and psychiatric treatments delivered via webcam or telephone were limited or mixed with respect to improvement in suicidal behaviours. Furthermore, Sander et al. (2020) reported that all studies concerning remote tele-mental health support highlighted significant ethical concerns about ensuring the safety of patients who were at risk of suicide and self-harm. Rojas et al (2019) recommended a need for strict contingency plans for such interventions to take place. Conversely, some of these studies also report that the capacity to coordinate with emergency services, while observing the patient and telemental health interventions, was shown to be an acceptable alternative to hospitalisation in the United States.

5.3.7. Self-guided interventions

Self-guided interventions were most commonly internet-based (78, 93), including LEAP (Hill et al., 2019), a web-based selective preventive intervention based on

interpersonal-psychological theory to identify the role of perceived burdensomeness as a potential target for reducing suicidal ideation. This intervention was found to be highly effective in reducing suicidal ideation and behaviour in adolescents.

5.3.8. Medications

Only three studies included medication as a suicide prevention intervention; each reported positive effect (69, 87, 96). Ketamine (96) was found to be fast-acting and effective in reducing clinically significant suicidal ideation in prison populations, while there was some evidence that citalopram might reduce suicidality in oncology patients (69). Other anti-depressive pharmacological therapies were found to reduce suicide death, though not self-harm, in older populations (87). The National Institute of Health and Care Excellence does not recommend use of ketamine for the treatment of depression (NICE – National Institute of Health and Care Excellence. (2020).

5.3.9. Conclusions

Overall, direct therapeutic interventions, whether individual or community-based, seem to have positive effects on females of any age and older populations alike. Direct therapy with a problem-solving component and the involvement of a peer or family member seem to provide the most effective results in reducing suicidal ideation and behaviour, particularly in adolescent populations. However, the effects of these interventions may be limited to one-year post-intervention. Further replication is required to explore these effects. The brief longevity of the effects of these interventions is further reflected in one review which explored peer interventions for adult prison populations where the intervention effect disappeared once the intervention was discontinued (96). In contrast peer intervention effects remained pronounced in adolescents at a similar follow-up timepoint (98). Both peer interventions were found to be effective in reducing suicide attempt.

Direct community-based interventions were inconclusive, with negligible effects reported in the few studies which explored this approach. These interventions seemed to influence adolescent behaviour least of all when compared to other age groups. Conversely, indirect community interventions were associated with reduced incidence of suicide death following the intervention being introduced, though frequency of suicide attempts was unknown.

Token systems were found to have some effect on suicidal behaviour; however, the validity of their findings remains unknown due to small sample sizes. Similarly, technology-based interventions, especially mobile phone applications, showed greater potential for reaching target populations but ultimately did not significantly

differ from control group in the effects on suicidal ideation or behaviour. Token systems and technology-based remote therapy (e.g. tele-mental health, webcams) were the only two intervention approaches where concerns were reported by intervention leads or clinicians. These concerns pertained to ensuring the safety and wellbeing of participants when the clinician did not have direct access to individuals who were at risk of self-harm or suicide attempt. Despite this, however, both Hawton et al. (2016) and Hom et al. (2015) argued that the development of online tools for suicide prevention should be a priority for suicide prevention for any demographic group.

School-based interventions provided directly toward the student population are more effective in reducing suicidal ideation and behaviour than interventions targeted towards upskilling school faculty to become gatekeepers (e.g. signposting students to other services, continuing postvention). The findings of school-based interventions indicate that interventions for indicated or specific school populations would be most effective in reducing suicidal ideation or behaviour, rather than using a whole-school approach. This is because universal school-based interventions were found to help students' knowledge and confidence in addressing a peer's suicidal ideation or behaviour, but instance of suicidal ideation and behaviour was not reported to reduce significantly.

Studies exploring self-guided and peer-led interventions are significantly lacking and narrowly focused (e.g. prison population). As this is the most cost-effective and most targeted intervention available, more research needs to be conducted in exploring the efficacy of these strategies in suicide prevention.

Most of the studies included in the reviews discussed here were RCTs. However, as was mentioned in each review, there was considerable heterogeneity between studies, thereby making any definitive conclusions difficult to draw without further replication. Future research evaluating the efficacy of interventions would benefit from using both an RCT design and using measures and criteria that have been widely used by similar studies in the past.

Summary

- Therapeutic direct interventions (CBT and DBT) for specific populations have been shown to be effective in reducing suicidal ideation and behaviour across multiple demographic groups.
- Interventions with a problem-solving or interpersonal skills component may be crucial for effective suicide prevention interventions
- School- and technology-based interventions show promise; however, more research is required.

5.4. What gaps are there in our knowledge of preventive interventions for at risk groups?

There are a number of gaps in our knowledge about which intervention components are effective and who they are most effective for. These gaps extend beyond the therapeutic model used to develop these interventions, but also to the longevity of the interventions, delivery mode and the way in which they have been empirically assessed for efficacy. We consider some of the core issues below:

5.4.1. Research design

The studies reviewed here are heterogeneous with regard to methods, participants and outcome measures (72, 84, 94) and there is a shortage of evidence based on RCT methodology (widely regarded as the gold-standard for measuring intervention efficacy) (72). Furthermore, most reviews also report that studies are often under-powered (72), rendering statistically reliable conclusions impossible. Due to this variability and small-scale studies, any conclusions should be treated with caution.

5.4.2. Brief interventions

Brief interventions, both using remote (e.g. token systems, postcards, green cards etc.; 85) and direct/ in-person intervention systems (e.g. safety planning with telephone follow-up, 76), have yielded promising findings in larger studies. However, thus far brief interventions have been under-researched and therefore their effects are unknown (85).

5.4.3. Early intervention

A number of studies (68) recommend sleep hygiene as a possible early intervention for reducing suicide ideation or behaviour; however, these were not explored within the reviews included in this text. Hom et al. (2015) advises that educating adolescents in emotional literacy may help them to self-identify when it is appropriate to seek help and support for suicidal thoughts and behaviour.

5.4.4. Targeted population approach

All studies which used a direct, targeted approach reported a significant reduction in suicidal ideation and behaviour. However, these interventions are time-intensive for both the patient and clinician and are therefore not feasible as a first approach to reducing suicide at a national level. These approaches would be best suited to those at highest risk of suicidal behaviour, which includes individuals who have a diagnosis of mental illness or previous suicidal thoughts or behaviour. Suicide prevention interventions specifically applicable to psychiatric populations were not, however, identified in this review.

A response to these shortcomings has been indirect, targeted prevention strategies including technology-based interventions (e.g. mobile apps). Although mobile apps have proven to be more efficient way to reach more people, as well as more cost-effective than clinician-lead therapy appointments, research is still catching up with technology regarding its measurable effect in supporting helping mental health (79). Despite this, Katz et al. (2020) recommended the introduction of mobile apps for suicide prevention and emotion regulation for adolescent youths, especially those who are not living in their family home (e.g. Looked After and Cared for; LAC). These populations are at particular risk of suicidal ideation and behaviour and apps are more likely to reach those who are avoidant of help-seeking.

5.4.5. Selected population approach

Bulotiene and Pociute (2019) argue that prevention strategies applied to the general population (e.g. restriction of means) should be applied to oncology patients to mitigate risk of suicidal behaviour. Oncology patients are identified as an at-risk group for suicide attempt and death. However, these safety precautions have not been applied in other high-risk groups, including those with other health concerns (74, 75). This lack of population-specific suicide prevention strategies, knowledge and research particularly pertains to older generations who are at increased risk of suicide (86). Elderly generations are most susceptible to poor health, as well as other factors associated with risks associated with suicide behaviour (e.g. reduced social support, negative future thinking, more likely to have access to medications). Interventions targeting the eldest in society have the potential to reduce the prevalence of suicidal ideation and behaviour. However, more research is required to identify age-specific volitional factors in this age group (86).

5.4.6. Universal approaches

School-based indicated interventions hold promise, as do most interventions with targeted populations. However, universal school-based interventions also show

potential in reducing suicidal ideation and behaviour (70), with effects on male participants remaining under-researched (81). However, the cost-benefit return of some such approaches (e.g., screening, leading to large numbers of false positives) is not sufficient to recommend universal approaches at this stage Additionally, the longevity of these school-based interventions remain unclear, with only one review commenting on measurable effects at 6, 12 and 24 month follow-up (74). Some recommendations are made for training students directly rather than training gatekeepers, but no studies reported the difference in effect between these two approaches. Increasing interest is being shown in the use of mobile apps to support mental health, due to its reach across populations and convenience of access (78).

5.4.7. Specific skills/Components

Multiple studies reported that problem-solving and social upskilling were effective in reducing suicidal ideation and behaviour (82, 86). However, these skillsets were often used in combination, thereby making it difficult to identify which elements are most influential in reducing suicidal ideation and behaviour (87). One review (97) which looked at peer befriending found that this approach significantly reduced suicidal ideation, behaviour and death while the intervention was ongoing. However, it was found that within 12 months of the intervention ending, suicide deaths had returned to their pre-intervention levels. Although this provides some evidence of the effect of a social component to prevent suicide, this also demonstrates that the effects are short-lived once prescribed social support is withdrawn.

5.4.8. Conclusions

Based on the limited evidence available, tailored interventions may reduce suicidal ideation and behaviour in select populations. Further research is needed to identify any active ingredients which determine the effect of interventions for suicide prevention, namely problem solving and social skills development. Additionally, further research is needed to identify the longevity of these interventions. Based on the limited number of reviews here, the research tentatively suggests that gatekeepers in schools may not be as effective as training and support offered to students directly; however, further assessment of the pre-existing role of gatekeeper within health and school domains is required in order to better understand how gatekeepers facilitate suicide prevention. Mobile Apps and other technology-based approaches appear to be the upcoming mode of therapeutic intervention for both individual and universal use, with evidence to suggest it could be an effective approach when trying to reach target populations, including those who are help avoidant or living remotely.

Summary

- Lack of longitudinal studies makes it difficult to predict the longevity of different suicide prevention strategies.
- Studies comparing the efficacy of problem-solving compared to interpersonal skills are required to determine which is most effective in reducing or preventing suicidal ideation and behaviour.
- School-based studies require more controlled, robust designs in order to accurately draw comparisons between gate-keeping interventions compared to universal school-based interventions for students.

6. Observations on conducting discussion groups with people affected by suicide

Although there is no evidence (DeCou et al., 2017; Blades et al., 2018) of iatrogenic effect[4] when talking/asking about suicide with people affected by suicide, important observations should be made given the nuance involved in such a topic. For example, a recent study conducted by Littlewood and colleagues (2019) provides evidence that some individuals may experience a short-term lowering of mood after participating in a suicide-related qualitative interview. However, these researchers also state that those mood changes do not compare to an increased risk of suicidal thoughts and behaviours. Important recommendations by Littlewood and colleagues are presented in Table 4.1 (Appendix).

Taking a similar approach, Hom and collaborators (2020) identified and synthesised recommendations by people who attempted suicide about ways to improve mental health treatment experiences for suicide attempt survivors. Although the main focus of this study was on the provision of mental health services, recommendations about how to interact with this population can be useful when conducting discussion groups with those affected by suicide, outside clinical settings. These recommendations are presented in Table 4.2 (Appendix).

Summary

- There is no evidence of iatrogenic effect when talking/asking about suicide.
- Given the sensitive nature of the topic, important recommendations should be followed when talking about suicide and interacting with vulnerable groups (Table 4 – Appendix).

[4] *Iatrogenesis* (from the Greek for "brought forth by the healer"), in the context of suicide prevention, refers to the perception that assessing suicide risk or talking about suicide may induce suicidal thoughts and behaviours in those affected by suicide or other mental health issue.

Appendices

Search Strategy 1

We searched for empirical studies published in the past 20 years (2000-2020) that could provide some information about vulnerable groups in Scotland who are at risk of suicide.

Date or search: 12th February 2020.

Searches engines (databases): *EBSCOhost* (CINAHL, Health Source: Nursing/Academic Edition, APA PsycArticles, Psychology and Behavioral Sciences Collection, APA PsycInfo), *Web of Science* (Web of Science Core Collection, BIOSIS Citation Index, BIOSIS Previews, CABI: CAB Abstracts, Current Contents Connect, Data Citation Index, Derwent Innovations Index, KCI-Korean Journal Database, MEDLINE, Russian Science Citation Index, SciELO Citation Index, Zoological Record), and *Ovid* (Embase).

Refined by: Journal articles, past two decades (2000-2020), including "Scotland" OR "Scottish" OR "Scots" in the title.

Suggested search terms:

Search	Key search terms
#1	"at risk" OR at-risk OR underprivilege* OR underserve* OR disadvantage* OR vulnerable OR vulnerability OR clinical
#2	suicid* OR self-harm OR "self harm" OR self-injury OR "self injury"
#3	scotland OR scottish OR scots [TITLE]
#4	#1 AND #2 AND #3

Results:

A total of 126 records (EBSCOhost = 41; Web of Science = 39; EMBASE = 46) were found. Forty-seven records were excluded after deduplication, resulting in 79 papers included in the title and abstract screening process. A final number of 20 empirical studies were found to be relevant to the search question. We only included studies that contained information about Scotland. The studies' details are included in Table 1 (appendix).

Table 1. Suicide-related studies with focus on Scotland

Study	Data source and sample	Outcome	Associated factors
1. Jones et al., 2000	Cases of plastic bag asphyxia between 1984 and 1998 inclusive were identified from records of the Forensic Medicine Unit. Relevant police reports, autopsy findings, and toxicologic results were examined. N = 30, 27 suicides (Mean age = 50; range of 13 to 81) from the Lothian and Borders region of southeast Scotland.	Suicide	Chronic psychiatric illness; unable to cope with sudden changing in social circumstances; terminal illness; chronic debilitating illness.
2. Stark et al., 2003	People discharged alive from psychiatric hospitals in Scotland in 1977 – 94 after a stay of one year or longer were identified using routine hospital records.	Suicide	Psychiatric illness, psychiatric in-patient care.
3. Bird et al., 2003	Scotland's male prisons and young offenders' institutions during July to December 1996–99; 19 486 index releases after 14+ days' incarceration.	Suicide	Drug-use; incarceration; deprivation; opioid dependence.
4. Gilchrist et al., 2005	176 female drug users with lifetime involvement in prostitution (prostitutes) and 89 female drug users with no involvement (non-prostitutes) in Glasgow.	Suicide attempt	Adult physical or sexual abuse; depressive symptoms.
5. Levin et al., 2005	Urban/rural inequalities in suicide in Scotland, 1981–1999. Mortality data relating to suicide provided by GROS[a], the Carstairs deprivation indicator, and a rurality indicator created from the Scottish Household Survey rurality classification.	Suicide	Men living in remote rural areas, regardless of age and level of deprivation.
6. Boyle et al., 2005	GROS[a] suicide and undetermined causes mortality data for 1980-2 and 1999-2001 and Carstairs deprivation indicator.	Suicide	Men living in deprived areas of Scotland.
7. Leyland et al., 2007	GROS[a] death records for 1980–82, 1991–92, and 2000–02 and mid-year population estimates for 1981, 1991, 2002; Carstairs deprivation indicator; Income domain of the SIMD[b] (receipt of social security benefits and tax credits).	Suicide	Deprived neighbourhoods.
8. Exeter et al., 2007	GROS[a] suicide and undetermined causes data by young adults (15-44 years) in Scotland for 1980-1982, 1990-1992, and 1999-2001; Carstairs deprivation scores.	Suicide	Cluster of suicides in east Glasgow for all periods. Deprivation.

(cont.)

(Cont.) Table 1.

Study	Data source and sample	Outcome	Associated factors
9. Camidge et al., 2007	Morbidity, cancer, death, self-harm, and accident records (1981-1995) from NHS-ISD[c] Scotland's database.	Self-harm and suicide	First 5 years of a cancer diagnosis.
10. Stark et al., 2007	GROS[a] suicide and undetermined causes data in Scotland for 1981-1999; Carstairs deprivation index.	Suicide	Deprivation (all age groups); most and least densely populated areas (male only), independent of deprivation.
11. Payne et al., 2009	Acute and psychiatric admissions (1996- 2002) NHS-ISD[c] death records (1981-2004).	Readmission with self-poisoning	Younger age, higher deprivation, ingestion of certain drug groups or multiple drug types, and prior psychiatric hospital admission.
12. O'Connor et al., 2019	Secondary school pupils (15-16 years) in Glasgow and Stirling.	Self-harm	Both genders: Smoking, bullying, worries about sexual orientation, self-harm by family and anxiety. Girls: drug use, physical abuse, serious boy/girlfriend problems, self-harm by friends and low levels of optimism.
13. Exeter et al., 2011	GROS[a] records for the periods 1980-1982 and 1999-2001; Carstairs deprivation scores.	Suicide	Deprivation, socioeconomic inequalities.
14. Stark et al., 2012	GROS[a] records for Highland residents (2001-2004)	Suicide	Previous diagnosis of mental illness, substance misuse problems, history of self-harm.
15. Riordan et al., 2012	NHS-ISD[c]; GROS[a] death records.	Suicide, self-harm, psychiatric hospital admission	Younger maternal age and higher maternal parity were independently associated with increased risk in offspring of suicide, of self-harm and of psychiatric admission.
16. Merralll et al., 2013	Scottish Drug Misuse Database (1996-2006), NHS-ISD; Health Protection Scotland.	Suicide	People receiving treatment for drug dependence, discharged from a period of hospitalisation.
17. Mok et al., 2013	All suicides (2001-2006) in Scotland and England (NCISH[d]); GROS[a]; Postcode (Primary Care Organisations and Health Boards).	Suicide	Prescriptions for psychotropic drugs, alcohol and drug use, socioeconomic deprivation, social fragmentation, and other health-related indices.

(cont.)

(Cont.) Table 1.

Study	Data source and sample	Outcome	Associated factors
18. Ajetunmobi et al., 2013	NHS-ISD[c] data from patients with a first hospital admission for mental disorder between 1986 and 2009 who had died by 31 December 2010.	Suicide	Young adults, mentally ill.
19. Parkinson et al., 2018	National Records of Scotland data of drug-related deaths.	Suicide	Young adult males, deprived areas, high unemployment levels, reduced support.
20. Lemaigre et al., 2019	Cohort of 86 socio-economically deprived male Caucasian participants previously identified as suicidal, attending a non-clinical community group.	Suicidality	Deprivation, childhood trauma, emotion dysregulation, interpersonal difficulties.

[a]GROS = General Register Office for Scotland; [b]SIMD = Scottish Index of Multiple Deprivation; [c]NHS-ISD = NHS Information Services Division; [d]NCISH = National Confidential Inquiry into Suicide and Homicide by People with Mental Illness.
For full publication details see References section.

Search Strategy 2

To address the research question 2, we searched for empirical studies published in the past 20 years (2000-2020) that could provide some information about the characteristics of population groups and associated experiences associated with feelings and self-perceptions of defeat/humiliation, entrapment, self-harm, and suicidal thoughts and behaviours. To increase the range of papers covered, we also included scientific articles that operationalised defeat/humiliation through 'shame', 'rejection', and 'invalidation'.

Date or search: 11th February 2020.

Searches engines (databases): *EBSCOhost* (CINAHL, Health Source: Nursing/Academic Edition, APA PsycArticles, Psychology and Behavioral Sciences Collection, APA PsycInfo), *Web of Science* (Web of Science Core Collection, BIOSIS Citation Index, BIOSIS Previews, CABI: CAB Abstracts, Current Contents Connect, Data Citation Index, Derwent Innovations Index, KCI-Korean Journal Database, MEDLINE, Russian Science Citation Index, SciELO Citation Index, Zoological Record), and *Ovid* (Embase).

Refined by: No restriction.

Suggested search terms:

Search	Key search terms
#1	defeat OR entrapment OR shame OR rejection
#2	suicid* OR self-harm OR "self harm" OR self-injury OR "self injury"
#3	#1 AND #2

Results:

A total of 6777 records (EBSCOhost = 2858; Web of Science = 2588; EMBASE = 1331) were found. A total of 2780 records were excluded after deduplication, resulting in 5795 papers included in the title and abstract screening process. A final number of 47 empirical studies were found to be relevant for the search question. We only included studies published in the past two decades (2000-2020). The studies' details are included in Table 2 (appendix).

Table 2. Sample of studies indicating populations experiencing IMV risk factors.

Study	Population	Sample	Study design	IMV risk factors	Main findings
21. Alix et al., 2019 [Canada]	Clinical population	Sexually abused adolescent girls with PTSD (N = 100; age 14-18).	Longitudinal (6-month follow up).	Defeat/Humiliation (Shame)	The findings seem to confirm the effect of self-blame, shame, and avoidance on later PTSD and depressive symptoms, and suicidal ideation among adolescent girls victim of sexual abuse.
22. Cheek et al., 2020 [USA]	Clinical population	Adolescents admitted to a psychiatric facility (N = 2019; age 12-17; 74.3% were female).	Longitudinal (6-month follow up).	Defeat/Humiliation (Rejection)	The number of rejection life events was associated with suicidal ideation at 6-month follow-up, even after considering other potent risk factors such as baseline suicidal ideation, depressive symptoms, sex, age and number of stressors not characterised by rejection.
23. Clarke et al., 2016 [England]	Clinical population	Patients admitted to A&E for self-harm (N = 58; M = 18, F = 40; age 18-50+).	Cross-sectional	Entrapment	Most participants (55/58; 94.8%) reported that prior to their self-harm episode, they felt they wanted to escape and get away from things.
24. O'Brien et al., 2019 [USA]	Clinical population	Adolescents from an inpatient psychiatric unit (N = 20; F = 15; M = 3, Trans = 2; age 13-17).	Qualitative	Entrapment; Defeat/Humiliation (Shame, Invalidation)	Being trapped in a feeling or situation with no relief was one that participants felt could no longer bear. Many adolescents were unable to stop fixating on this feeling, which contributed to their belief that suicide was the only option to make the pain of the emotions and/or situation end. Shame seemed to cause adolescents to turn inward and hesitate to seek help from others.
25. Owen et al., 2018 [England]	Clinical population	Participants with a primary diagnosis of bipolar disorder (N = 62; M = 38%, F = 62%; age 23-65).	Longitudinal (4-month follow up)	Defeat; Entrapment.	Results suggest that perceived defeat and entrapment underlie the development of prospective suicidal ideation in bipolar disorder.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
26. Panagioti et al., 2013 [England]	Clinical population	Participants diagnosed with current or lifetime PTSD (N = 73; mean age = 29.2, SD = 10.9; 79.5% female).	Cross-sectional	Defeat; Entrapment	Defeat and entrapment fully mediated the effects of PTSD symptom severity upon suicidal behaviour, while depression and hopelessness did not significantly mediate this relationship.
27. Panagioti et al., 2012 [England]	Clinical population	Participants diagnosed with PTSD (N = 95; F = 69, M = 22; mean age = 30.3, SD = 11.1).	Cross-sectional	Defeat; Entrapment	For individuals with PTSD, suicidal behaviour was associated with hopelessness and entrapment independent of comorbid symptoms of depression.
28. Panagioti et al., 2015 [England]	Clinical population	Participants diagnosed with PTSD (N = 52; mean age = 28.7, SD = 10.8; 79.5% were female).	Longitudinal	Defeat; Entrapment	Defeat/entrapment were associated with changes in suicidal ideation at follow-up while above and beyond previous experiences of suicidal ideation, PTSD severity, comorbid depressive symptoms, and hopelessness.
29. Tang et al., 2016 [England]	Clinical population	Patients with chronic pain (N = 62; mean age = 52.3, SD = 11.1; 67.7% were female)	Cross-sectional	Defeat/Humiliation	Mental defeat was strongly associated with suicidal intent above and beyond pain intensity.
30. Taylor, 2020 [Canada]	Clinical population	Women who have experienced intimate partner violence (N = 32; Age 19+).	Qualitative	Entrapment	System Entrapment or being dehumanised while seeking help for suicidality occurred as a result of perceived invalidation from health care providers' lack of empathy. System Entrapment is the basic psycho-social problem of women's help-seeking for suicidality after having experienced intimate partner violence and is characterised as perceived invalidation within the health care system that leads to dehumanisation.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
31. Taylor et al., 2010 [England]	Clinical population	Patients with schizophrenia spectrum disorders (N = 78; 23 were female; mean age = 42.5, SD = 11.8).	Cross-sectional	Defeat; Entrapment	Defeat/entrapment (conceptualised as a single factor) was strongly associated with suicidal ideation and behaviour. Defeat and entrapment also mediated the relationship between severity of psychosis symptoms and suicidal thoughts.
32. Weingarden et al., 2016 [USA]	Clinical population	People with diagnosis of body dysmorphic disorder, obsessive compulsive disorder (n = 114), and healthy controls (n = 133). Overall mean age = 32.42; Mostly female (>76%).	Cross-sectional	Defeat/Humiliation (Shame)	Anxiety and shame are associated to suicidal thoughts and behaviours in the clinical populations (obsessive compulsive disorder and body dysmorphia) but not healthy controls.
33. Forkmann et al., 2017 [Germany]	General population	Online survey (N = 480; age = 18-80; 74% female)	Cross-sectional	Defeat; Entrapment	Perceived burdensomeness and entrapment exert a unique influence on suicide ideation.
34. Mahtani et al., 2019 [Australia]	General population	Online survey (N = 220; age = 18-25; 82.7% female)	Cross-sectional	Defeat/Humiliation (Shame)	Current shame-proneness (experiencing shame in a trait-like manner) was also linked to proximal self-harm via internalizing shame-coping (responding to shame through attacking one's self and withdrawing), current loneliness, and current psychological distress.
35. Ng et al., 2016 [Hong Kong]	General population	Participants with current suicidal ideation (n = 82, 24 male) and healthy controls (n = 80; 22 male). Mean age = 45.9, SD = 15.27.	Longitudinal (7-week follow up)	Defeat; Entrapment	Mental images of suicide and defeat were distinctly predictive of those with suicidal ideation at both baseline and 7 weeks later. At baseline and seven weeks, suicidal ideation was predicted by an interaction between experiences of suicidal mental images and perceptions of entrapment.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
36. Rice et al., 2020 [Canada]	General population	Canadian men from an online survey (N = 1000; age range = 19-86; mean age = 49.63, SD = 14.59)	Cross-sectional	Defeat/Humiliation (Shame)	Men's difficulties in identifying and describing their feelings and corresponding distress are particularly explained by shame (which promotes concealment of a perceived defective self). Guilt was more salient for men's suicide-related behaviours.
37. Schoenleber et al., 2014 [USA]	General population	Community-sample women (N = 67; 25 with history of self-harm). Mean age = 23.7, SD = 6.4.	Lab-based experimental	Defeat/Humiliation (Shame)	Elevations in shame-proneness were associated with more frequent self-harm, even after taking relevant, broader personality dimensions (e.g., proneness to general negative affect) into account.
38. Taylor et al., 2019 [England]	General population	Survey with 206 participants with current self-harm (n = 51), past self-harm (n = 44), and no self-harm (n = 110). Age range 18-49 (M = 23, F = 179; Non-binary = 3).	Cross-sectional	Defeat/Humiliation (Shame)	Shame acted as a stable correlate of self-harm, remaining elevated even in participants who had not engaged in self-harm in the last year.
39. Teismann et al., 2020 [Germany]	General population	Online survey (N = 301; 57.8% female; mean age = 32.43, SD = 13.68, age range: 18-77).	Cross-sectional	Entrapment	Individuals who reported low levels of positive mental health, psychological well-being, and/or self-acceptance were particularly likely to suffer from suicide ideation at higher levels of entrapment.
40. Wetherall et al., 2018 [UK]	General population	Online survey (N = 422; 83.6% female; mean age = 22.87, SD = 5.2; age range = 16–61).	Cross-sectional	Defeat; Entrapment	Negative social comparisons may be related to suicide ideation by acting through defeat and entrapment. The emergence of entrapment and suicide ideation may be buffered by resilience.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
41. Wetherall et al., 2018 [Scotland]	Students and Young People	Representative sample of Scotland young adults (N = 3508, age range = 18-34, M = 1740, F = 1768).	Cross-sectional	Defeat; Entrapment	Individuals without a history of suicidal ideation or attempt (control group) reported significantly lower on defeat and entrapment than those with a suicidal ideation or attempt history.
42. Cloos et al., 2020 [Germany]	Students and Young People	Female university students who self-harm (N = 19; mean age = 24.63, SD = 4.52).	Daily diary study	Entrapment	Entrapment beliefs were increased on self-harm days compared to days without self-harm which confirms that entrapment may be relevant in self-harm as well as in suicidal thoughts and behaviours.
43. Esposito et al., 2019 [Italy]	Students and Young People	Highschool adolescents (N = 640; M = 253, F = 387; mean age = 15.6, SD = 1.65).	Cross-sectional	Defeat/Humiliation (Rejection)	Being involved in bullying (as bullies, victims, or bully-victims) increases the likelihood to engage in self-harm; being rejected by peers amplifies the probability, for victims and bully-victims, of engaging in self-harm at least once.
44. O'Connor et al., 2014 [Scotland]	Students and Young People	University students (N = 109; M = 41; F = 68; mean age = 22.9; SD = 6.11).	Experimental and longitudinal	Defeat; Entrapment	Following the mood/defeat induction, positive future thinking decreased and this reduction was marked among those high on entrapment.
45. Ren et al., 2019 [China]	Students and Young People	Highschool adolescents (N = 1074; 54.2% female; mean age = 13.83, SD = 1.53; age range = 11-18).	Cross-sectional	Entrapment	Low self-esteem was associated with suicidal ideation when participants felt high levels of entrapment.
46. Russell et al., 2018 [Scotland]	Students and Young People	Secondary school students (19 mainstream schools across Scotland; N = 1,045; 52.8% female; age range = 15-17; mean age = 15.35, SD = 0.68).	Cross-sectional	Defeat; Entrapment	Perceptions of both defeat and entrapment were elevated in young people who reported clinically salient insomnia and/or nightmares, relative to those who did not. The relationship between insomnia and suicidal ideation was fully mediated by perceptions of defeat and entrapment, whereas nightmares were indirectly associated with suicidal ideation through perceptions of defeat and entrapment.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
47. Taylor, Wood et al., 2010 [England]	Students and Young People	University students (N = 93; 17 males, mean age = 23.45, SD = 7.06).	Cross-sectional	Defeat; Entrapment	Perceptions of problem-solving ability and social support availability were associated with suicide risk in the presence of defeat and entrapment.
48. Taylor et al., 2011a [England]	Students and Young People	University students (N = 79; 13 males, mean age = 19.61, SD = 4.45).	Longitudinal (12-month follow up)	Defeat; Entrapment	Perceived defeat, but not entrapment, at time 1, predicted the change in frequency of suicidal ideation over the following 12 months, independent of depressive symptoms.
49. VanDerhei et al., 2014 [USA]	Students and Young People	University students (N = 378; age range = 18-54; mean age = 20.84, SD = 4.7; 71% female).	Cross-sectional	Defeat/Humiliation (Shame)	High shame-proneness was associated with higher frequencies of self-harm.
50. Törnblom et al., 2015 [Sweden]	Students and Young People	Interviews (N = 78) with parents in 52 cases of their children's suicide (19 women, 33 men).	Cross-sectional (psychological autopsy)	Defeat/Humiliation (Shame); Entrapment	Finding no way out (entrapment), the young persons looked for an "emergency exit". Signs and preparations could be observed at different times but recognised only in retrospect. Typically, the young persons and their parents asked for professional help but did not receive the help they needed.
51. Wielgus et al., 2019 [USA]	Students and Young People	University students (N = 116; 80.2% female, mean age = 19.52, SD = 1.49; age range = 17-29).	Cross-sectional	Defeat/Humiliation (Shame);	Shame-proneness was uniquely associated with self-harm frequency beyond other negative emotions. Negative urgency (impulsive when feeling negative emotions) exacerbated shame-proneness, increasing vulnerability for self-harm engagement and frequency.
52. Xavier et al., 2016 [Portugal]	Students and Young People	School adolescents (N = 782; M = 369, F = 413; mean age = 14.89, SD = 1.76, age range = 12-18).	Cross-sectional	Defeat/Humiliation (Shame);	External shame, hated self, and fear of self-compassion indirectly predict self-harm, through their effect in daily peer hassles and depression. The most pathological form of self-criticism (hated self) was strongly associated with self-harm.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
53. Cawley et al., 2019 [England]	Mixed populations	General population, students, National datasets, clinical samples.	Systematic review	Defeat/Humiliation (Rejection)	Perceived rejection may leave some individuals at risk of self-harm and might account for the elevated risk in marginalised societal groups.
54. O'Connor et al., 2018 [Scotland]	Mixed populations	General population, clinical samples, minority groups.	Scoping review	Entrapment	Studies suggest: 1) entrapment predicted repeat suicidal behaviour in the 4 years after an index hospital-treated suicide attempt; 2) being a victim of bullying has been suggested as a key contributor as it involves exposure to defeat from which escape may not have been possible; 3) It is unclear whether entrapment is a culturally sensitive construct or whether it is more pernicious in men versus women and at different stages in life.
55. Sheehy et al., 2019 [England]	Mixed populations	General population, clinical samples, university students, minority groups.	Systematic review	Defeat/Humiliation (Shame);	Most forms of shame were associated with non-suicidal self-injury, but research was sparse concerning suicidal behaviour. Shame should be considered in psychological assessments with those who self-harm.
56. Siddaway et al., 2015 [Scotland]	Mixed populations	General population, clinical samples, university students, minority groups.	Systematic review	Defat; Entrapment	Perceptions of defeat and entrapment are clinically important in depression, anxiety problems, PTSD, and suicide risk. Strong relationships across four different psychiatric disorders could suggest that perceptions of defeat and entrapment are transdiagnostic constructs. Clinicians and researchers need to become more aware of perceptions of defeat and entrapment.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
57. Taylor et al., 2011b [England]	Mixed populations	General population, clinical samples, university students, minority groups.	Systematic review	Defeat; Entrapment	There is convergent evidence, across a number of clinical and nonclinical samples, that perceptions of defeat and entrapment are associated with an increased risk of suicidality. The predominant use of complex multivariate and mediational analyses provides evidence that defeat and entrapment have a proximal role in the mechanisms underlying suicide, mediating the effects that other environmental (loneliness, abuse, and neglect) and psychological factors (positive psychotic symptoms, negative self-appraisals, low self-esteem) exert on levels of suicidality.
58. Teismann et al., 2017 [Germany]	Mixed populations	Online sample (n = 142; 75.4% female; age range = 17-71, mean age = 35.20, SD = 14.8.) and a clinical sample (n = 226; 56.6% female; mean age = 36.4, SD = 12.9, age range = 18-73) of adults receiving outpatient psychotherapy.	Cross-sectional	Entrapment	The findings suggest that the relationship between rumination and suicide ideation is explained by perceptions of entrapment.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
59. Bryant et al., 2015 [Australia]	Minority Groups	Australian farmers (N = 54; M = 42, F = 12; age range = 25+).	Qualitative	Defeat/Humiliation (Shame and failure);	When farm viability is threatened and farmland degraded through drought or economic pressures, farmers experience shame and an 'undoing' of masculine subjectivity that constitutes a de-subjugation of their farming identity. Farmers in economic crisis are also subjected to shaming by their communities according to a moral economy in which 'failure' at farming is transgressive of idealized norms that constitute the 'good farmer'.
60. Klein et al., 2016 [USA]	Minority Groups	National Transgender Discrimination Survey (n = 6456; Age 18+; Binary gender identity: Yes = 3582, No = 2003).	Cross-sectional	Defeat/Humiliation (Rejection)	Overall, 42.3% of the sample reported a suicide attempt and 26.3% reported misusing drugs or alcohol to cope with transgender-related discrimination. Family rejection was associated with increased odds of both behaviours (suicide attempt and drug use) independent of age, race/ethnicity, sex assigned at birth, binary gender identity, income, education, and employment status.
61. McDerrmot et al., 2019 [England and Wales]	Minority Groups	LGBTQ+ young people (N = 27; age range = 16-25).	Qualitative	Defeat/Humiliation (Shame);	Young LGBT people seem to negotiate homophobia through shame-avoidance such as: routinising and minimising homophobia; maintaining individual 'adult' responsibility; and constructing 'proud' identities. These strategies of shame-avoidance suggest young LGBT people manage homophobia individually, without expectation of support and, as such, may make them vulnerable to self-harm and suicidal behaviours.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
62. Mereish et al., 2019 [USA]	Minority Groups	LGBTQ+ participants recruited via online survey (N = 719; age range = 18-76; mean age = 42.07, SD = 14.98).	Cross-sectional	Defeat/Humiliation (Shame, Rejection);	Heterosexist victimization, shame, and rejection sensitivity were significant risk factors for suicide. Shame and rejection sensitivity were mediators of the association between heterosexist victimization and suicide risk for subgroups of sexual minorities, mostly lesbian and gay individuals and to some extent bisexual individuals.
63. Milligan et al., 2005 [England]	Minority Groups	Sentenced female prison inmates (N = 89; mean age = 31.8, SD = 9:37; age range = 21-39).	Cross-sectional	Defeat/Humiliation (Shame);	Women reporting self-harming behaviours were significantly more likely to be Caucasian, to have experienced childhood abuse (particularly sexual abuse) and to report higher levels of all facets of anger and shame assessed, but particularly bodily shame.
64. Rasmussen et al., 2019 [Scotland]	Minority Groups	LGBTQ+ (n = 113) and heterosexual (n = 303) young people recruited via online survey (Mean age = 23.40; SD = 4.15).	Cross-sectional	Defeat; Entrapment	Heterosexual individuals reported significantly less defeat, entrapment, and suicidal ideation and intent compared to bisexual, gay, lesbian, and other sexual minority (e.g., pansexual) persons.
65. Shelef et al., 2016 [Israel]	Minority Groups	Israeli soldiers (N = 168; M = 59.5%, F = 40.5%; mean age = 19.7; age range = 18-21).	Cross-sectional	Entrapment	Entrapment is an important predictor of suicide ideation and can serve as a moderator, in that its presence may exacerbate the harsh situation of subjective stress within the military context and intensify it into a suicide risk.
66. Slade et al., 2012 [England]	Minority Groups	Sentenced male prison inmates (N = 177; mean age = 32.7, SD = 9.8, age = 21+)	Longitudinal (4-month follow up)	Defeat; Entrapment	Defeat and entrapment were temporally associated with self-harm in prison 4 months later, independent of history of self-harm, depression, and hopelessness.

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Study	Population	Sample	Study design	IMV risk factors	Main findings
67. Lai et al., 2017 [International]	Minority Groups	Refugees, asylum seekers, immigrants (wide range of demographic variables).	Review	Defeat/Humiliation (Shame, Discrimination);	Language, employment, and service barriers (e.g. lack of knowledge and mistrust of mainstream services, lack of appropriate services) and fears about immigration status contribute to suicide behaviours, including attempts, as well as limiting help seeking. Wider systems of discrimination (e.g. institutional and social/racial) also impact suicidal thoughts and behaviours).

PTSD = post-traumatic stress disorder; A&E = Hospital accident and emergency department;

Search Strategy 3

To address questions 3 and 4, we searched for reviews and empirical studies published in the past 20 years (2000-2020) that could provide some information about existing preventative approaches and interventions that are effective in preventing suicide among at risk groups. From the same papers (particularly from the reviews), we extracted information on the existent gaps in our knowledge of preventive interventions for at risk groups.

Date or search: 21st February 2020.

Searches engines (databases): *EBSCOhost* (CINAHL, Health Source: Nursing/Academic Edition, APA PsycArticles, Psychology and Behavioral Sciences Collection, APA PsycInfo), *Web of Science* (Web of Science Core Collection, BIOSIS Citation Index, BIOSIS Previews, CABI: CAB Abstracts, Current Contents Connect, Data Citation Index, Derwent Innovations Index, KCI-Korean Journal Database, MEDLINE, Russian Science Citation Index, SciELO Citation Index, Zoological Record), and *Ovid* (Embase).

Refined by: review OR "literature review" OR "systematic review" OR "meta analysis"

Suggested search terms:

Search	Key search terms
#1	"at risk" OR at-risk OR underprivilege* OR underserve* OR disadvantage* OR vulnerable OR vulnerability OR clinical
#2	suicid* OR self-harm OR "self harm" OR self-injury OR "self injury" [TITLE]
#3	interv* [TITLE]
#4	#1 AND #2 AND #3

Results:

A total of 167 records (EBSCOhost = 59; Web of Science = 63; EMBASE = 45) were found. Fifty-seven records were excluded after deduplication, resulting in 110 papers included in the title and abstract screening process. A final number of 31 papers were found to be relevant to the research questions.

Table 3. Sample of studies indicating effective preventative interventions.

Study	Population	Intervention	Comparison	Outcome	Abstract
68. Brent et al. 2013 [International] N =16	Adolescents with suicide history Age: NA Gender: NA	RCTs of a range of psychosocial interventions	TAU (n=13)/ Good clinical care (n=1) / Supportive counselling (n=1) Supportive relationship therapy (n=1)	Ideation, NSSI, attempt	**Objective:** To review the studies that test treatments targeting adolescent suicidal ideation, suicide attempts, or self-harm, and to make recommendations for future intervention development. **Method:** The extant randomized clinical trials that aim to reduce the intensity of suicidal ideation or the recurrence of suicide attempts or self-harm were reviewed with respect to treatment components, comparison treatments, sample composition and outcomes. **Results:** The majority of studies that showed any effect on suicidal ideation, attempts, or self-harm had some focus on family interactions or nonfamilial sources of support. Two of the most efficacious interventions also provided the greatest number of sessions. Some other treatment elements associated with positive effects include addressing motivation for treatment and having explicit plans for integrating the experimental treatment with treatment as usual. In many studies, suicidal events tend to occur very early in the course of treatment prior to when an effective "dose" of treatment could be delivered. Important factors that might mitigate suicidal risk, such as sobriety, healthy sleep, and promotion of positive affect, were not addressed in most studies. **Conclusion:** Interventions that can front-load treatment shortly after the suicidal crisis, for example, while adolescent suicide attempters are hospitalized, may avert early suicidal events. Treatments that focus on the augmentation of protective factors, such as parent support and positive affect, as well as the promotion of sobriety and healthy sleep, may be beneficial with regard to the prevention of recurrent suicidal ideation, attempts, or self-harm in adolescents.

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Study	Population	Intervention	Comparison	Outcome	Abstract
69. Bulotiene and Pociute, 2019 [International] N = 16	Oncology patients Age: Any Gender: Any	Psychotherapy Psychosocial interventions, pharmacotherapy, physical activity, telephone-based interventions, medication, nursing interventions, counselling, self monitoring	Controls (no intervention)	Ideation	The suicide risk of people diagnosed with cancer is two times higher than the general population. The number of cases of diagnosed cancer is estimated to rise by 70% over the next two decades. Evidence-based prevention strategies are necessary to protect this vulnerable group of individuals. The purpose of this review was to find out the risk factors of suicide and which types of interventions can serve as prevention strategies. Psychosocial interventions, pharmacotherapy and physical activity can play a preventive role in reducing psychosocial and physical risk factors, such as mental disorders, poor social support, poor performance status and pain. Further research is needed to develop effective suicide prevention strategies for cancer patients.
70. Busby et al. (2020) [International] N= Not stated	Adolescents Age: 10-19 Gender: Any	Dialectical Behavioral Therapy-Adolescent, Evidence Based Interventions	Individual/ group therapy. TAU	Ideation, self-harm	**Purpose of Review:** To review and discuss recent advances in evidence-based interventions (EBIs) for youth suicide risk. **Recent Findings:** There is a growing body of research on the effectiveness of interventions targeting suicidal ideation and behavior among adolescents. Dialectical Behavioral Therapy-Adolescent has shown effectiveness across two independent randomized controlled trials (RCTs). Several other interventions have shown effectiveness in only one trial and are in need of replication. New interventions are also being developed that incorporate developments in technology and adaptive intervention designs. It is recommended that future research focus on strategies for engaging underserved youth with interventions, consider the broader needs of youth living in poverty, and further tailor interventions to subgroups with distinct risk profiles. Limited EBIs exist for preadolescents, despite evidence for an increasing rate of suicidal behavior for these youth. **Summary:** Several interventions for youth suicide risk are highly promising, but further investigation is necessary. EBIs that are effective for preadolescents are needed, and greater efforts to tailor interventions for distinct subgroups of youth at risk are recommended

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Study	Population	Intervention	Comparison	Outcome	Abstract
70. Calear et al. 2016 [International] N=28	Youth with history of suicidal ideation or attempt. Age:12-25 years Gender: Any	RCTs of psychosocial interventions CBT, 25%; DBT, 9%; Problem solving therapy, 22%; , Social support, 37%; Motivational interviewing , 22%; Psychoeducation, 13%),	No intervention; waiting list; TAU; control condition	Ideation, attempt	Youth suicide is a significant public health problem. A systematic review was conducted to examine the effectiveness of school, community and healthcare-based interventions in reducing and preventing suicidal ideation, suicide attempts and deliberate self-harm in young people aged 12–25 years. PsycInfo, PubMed and Cochrane databases were searched to the end of December 2014 to identify randomised controlled trials evaluating the effectiveness of psychosocial interventions for youth suicide. In total, 13,747 abstracts were identified and screened for inclusion in a larger database. Of these, 29 papers describing 28 trials fulfilled the inclusion criteria for the current review. The results of the review indicated that just over half of the programs identified had a significant effect on suicidal ideation (Cohen's d = 0.16–3.01), suicide attempts (phi = 0.04–0.38) or deliberate self-harm (phi = 0.29–0.33; d = 0.42). The current review provides preliminary support for the implementation of universal and targeted interventions in all settings, using a diverse range of psychosocial approaches. Further quality research is needed to strengthen the evidence-base for suicide prevention programs in this population. In particular, the development of universal school-based interventions is promising given the potential reach of such an approach.

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Study	Population	Intervention	Comparison	Outcome	Abstract
72. Flaherty (2018) [International] N=7	NSSI adolescents (12-18)	DBT (n=1), Mentalization based treatment for adolescents (n=1), Developmental group therapy (DGT; n=3), Therapeutic assessment brief intervention (n=2)	TAU; Assessment as usual	Non-suicidal self-harm only	This systematic review aims to inform practitioners about the current research-informed practices that are available to treat adolescents who struggle with Non-Suicidal Self-Injury (NSSI). A computer based search of the literature was conducted via five databases and resulted in the retrieval of 595 articles, seven of which met all the inclusion criteria (peer-reviewed, published in English between 2000 and 2016, differentiated NSSI from suicidal self-harm, were randomized control trials of interventions, and targeted adolescents age 12–18 who were not diagnosed with BPD). Four psychosocial interventions were identified, Dialectical Behavior Therapy, mentalization based treatment for adolescents, developmental group intervention, and therapeutic assessment and brief intervention. At this time, there is no published randomized control trial that demonstrates a significant reduction in NSSI among adolescents. This further highlights the urgent need to develop and test effective and varied interventions for adolescents presenting with NSSI
73. Fountoulakis et al. 2011 [Japan] N=48	Population: Any Age: Any Gender: Age	Community-wide psychoeducation	Prior national or local suicide rates	Ideation, self-harm, attempt, death	Broad general community campaigns were developed to reduce suicide rates. The aim of the current paper was to review such studies in the literature. The MEDLINE search using a combination of the keywords ‘suicide’, ‘education’, ‘psychoeducation’ and ‘community’ updated through January 10th 2010, returned 424 references and relevant for the current review were 48 with 14 papers reporting results. Although suicide prevention programs through community education are widespread, the reporting of their efficacy is limited. It seems that only long-term programs that utilize a commitment of the society at multiple levels and succeed in establishing a community support network that can effectively reduce suicidal rates. The success of most interventions in changing the attitudes and improving the knowledge of the public concerning suicide is restricted at the theoretical–intellectual level; when it comes to action there seems to be no change. Very short duration interventions don't seem to have even this slight effect.

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Study	Population	Intervention	Comparison	Outcome	Abstract
74. Hawton et al. 2016 [International] N=29	Adults within 6 months of self-harm Age: ≥18 years Gender: Any	Psychosocial, CBT (n=18); DBT for BPD (n=3; problem-solving therapy); case management (n=4), postcards (n=4)	TAU	Ideation, self-harm	**Background** Self-harm (intentional acts of non-fatal self-poisoning or self-injury) is common, particularly in young adults aged 15–35 years, often repeated, and strongly associated with suicide. Effective aftercare of individuals who self-harm is therefore important. We have undertaken a Cochrane systematic review and meta-analysis of the effectiveness of psychosocial interventions for self-harm in adults. **Methods** We searched five electronic databases (CCDANCTR-Studies and References, CENTRAL, MEDLINE, Embase, and PsycINFO) between Jan 1, 1998, and April 29, 2015, for randomised controlled trials of psychosocial interventions for adults after a recent (within 6 months) episode of self-harm. Most interventions were assessed in single trials. We report results for interventions for which at least three randomised controlled trials comparing interventions with treatment as usual have been published and hence might contribute to clinical guidance. The primary outcome was repetition of self-harm at the conclusion of treatment and at 6, 12, and 24 months' follow-up analysed, when available, with the intention-to-treat method; if this was not possible, we analysed with all available case data. **Findings** We identified 29 non-overlapping randomised controlled trials with three independent trials of the same intervention. Cognitive-behavioural-based psychotherapy (CBT; comprising cognitive-behavioural and problem-solving therapy) was associated with fewer participants repeating self-harm at 6 months' (odds ratio 0·54, 95% CI 0·34–0·85;12 trials; n=1317) and at 12 months' follow-up (0·80, 0·65–0·98; ten trials; n=2232). There were also significant improvements in the secondary outcomes of depression, hopelessness, suicidal ideation, and problem solving. Patients receiving dialectical behaviour therapy (in three trials) were not less likely to repeat self-harm compared with those provided with treatment as usual at 6 months (odds ratio [OR] 0·59, 95% CI 0·16–2·15; n=267, three trials) or at 12 months (0·36, 0·05–2·47; n=172, two trials). However, the secondary endpoint of frequency of self-harm was associated with a significant reduction with use of dialectical behaviour therapy (mean difference –18·82, 95% CI–36·68 to –0·95). Four trials each of case management (OR 0·78, 95% CI 0·47–1·30; n=1608) and sending regular postcards (OR 0·87, 95% CI 0·62–1·23; n=3277) did not reduce repetition of self-harm. **Interpretation** CBT seems to be effective in patients after self-harm. Dialectical behaviour therapy did not reduce the proportion of patients repeating self-harm but did reduce the frequency of self-harm. However, aside from CBT, there were few trials of other promising interventions, precluding fi rm conclusions as to their effectiveness

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Study	Population	Intervention	Comparison	Outcome	Abstract
75. Hom et al. 2015 N=4	Adolescents, adults, older adults Age: ≥13 Gender: NA	Psychoeducation-based programs, peer and gatekeeper training, and screening-based approaches	None	Ideation; attempt;	Connecting suicidal individuals to appropriate mental health care services is a key component of suicide prevention efforts. This review aims to critically discuss the extant literature on help-seeking and mental health service utilization among individuals at elevated risk for suicide, as well as to outline challenges and future directions for research in this area. Across studies, the rate of mental health service use for those with past-year suicide ideation, plans, and/or attempts was approximately 29.5% based on weighted averages, with a lack of perceived need for services, preference for self-management, fear of hospitalization, and structural factors (e.g., time, finances) identified as key barriers to care. Studies also revealed facilitators to care, which include mental health literacy, positive views of services, and encouragement from family or friends to seek support. To address these low rates of help-seeking and barriers to care, a number of interventions have been developed, including psychoeducation-based programs, peer and gatekeeper training, and screening-based approaches. Despite these efforts, it appears that work is still needed to gauge the impact of these interventions on behavioral outcomes and to more rigorously test their effectiveness. Additional implications for future research on help-seeking among suicidal individuals are discussed.

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Study	Population	Intervention	Comparison	Outcome	Abstract
76. Ingaki et al., 2015 [International] N=24	Adults: suicide attempt in past month Age: Any Gender: Any	Active contact and follow-up (n=11), Psychotherapy (n=10), Pharmacotherapy (n=1); Miscellaneous (n=3; i.e. suicide prevention centre, therapeutic contact, transition from hospital to discharge home, brief intervention for alcohol misuse)	TAU	Suicide attempt	**Background:** A huge number of patients with self-harm and suicide attempt visit emergency departments (EDs). We systematically reviewed studies and examined the effect of interventions to prevent repeat suicidal behavior in patients admitted to EDs for a suicidal attempt. **Method:** We searched the databases of MEDLINE, PsychoINFO, CINAHL, and EMBASE through August 2013. Eligible studies were randomized controlled trials assessing the effects on repeat suicidal behavior of interventions initiated in suicidal patients admitted to EDs. Interventions in each trial were classified into groups by consensus. Meta-analyses were performed to determine pooled relative risks (RRs) and 95% confidence intervals (CIs) of repetition of suicide attempt for interventions in each group. **Results:** Out of 5390 retrieved articles, 24 trials were included and classified into four groups (11 trials in the Active contact and follow-up, nine in the Psychotherapy, one in the Pharmacotherapy, and three in the Miscellaneous). Active contact and follow-up type interventions were effective in preventing a repeat suicide within 12 months (n=5319; pooled RR=0.83; 95% CI: 0.71 to 0.97). However, the effect at 24 months was not confirmed (n=925; pooled RR=0.98; 95% CI: 0.76–1.22). The effects of the other interventions on preventing a repetition of suicidal behavior remain unclear. **Limitation:** Caution is needed regarding the heterogeneity of the effects. **Conclusion:** Interventions of active contact and follow-up are recommended to reduce the risk of a repeat suicide attempt at 12 months in patients admitted to EDs with a suicide attempt. However, the long-term effect was not confirmed.

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Study	Population	Intervention	Comparison	Outcome	Abstract
77. Iyengar et al., 2018 [International] N=21	Children and adolescents with self-harm or suicide attempt Age: 18 years Gender: Any	Clinical RCTs of all available therapies	TAU; Enhanced TAU; Placebo (n=11)	Self-harm, attempt	**Background:** Suicide attempts (SA) and other types of self-harm (SH) are strong predictors of death by suicide in adolescents, emphasizing the need to investigate therapeutic interventions in reduction of these and other symptoms. We conducted an updated systematic review of randomized controlled trials (RCTs) from our previous study reporting therapeutic interventions that were effective in reducing SH including SA, while additionally exploring reduction of suicidal ideation (SI) and depressive symptoms (DS). **Method:** A systematic literature search was conducted across OVID Medline, psycINFO, PubMed, EMBASE, and Cochrane Library from the first available article to October 22nd, 2017, with a primary focus on RCTs evaluating therapeutic interventions in the reduction of self-harm. Search terms included self-injurious behavior; self-mutilation; suicide, attempted; suicide; drug overdose. **Results:** Our search identified 1,348 articles, of which 743 eligible for review, yielding a total of 21 studies which met predetermined inclusion criteria. Eighteen unique therapeutic interventions were identified among all studies, stratified by individual-driven, socially driven, and mixed interventions, of which 5 studies found a significant effect for primary outcomes of self-harm and suicide attempts (31.3%), and 5 studies found a significant effect for secondary outcomes of suicidal ideation and depressive symptoms (29.4%) for therapeutic intervention vs. treatment as usual. Collapsing across different variations of Cognitive Behavior Therapy (CBT), and classifying Dialectical Behavior Therapy for Adolescents (DBT-A) as a type of CBT, CBT is the only intervention with replicated positive impact on reducing self-harm in adolescents **Conclusion:** While the majority of studies were not able to determine efficacy of therapeutic interventions for both primary and secondary outcomes, our systematic review suggests that individual self-driven and socially-driven processes appeared to show the greatest promise for reducing suicide attempts, with benefits of combined self-driven and systems-driven approaches for reducing overall self-harm. Further RCTs of all intervention categories are needed to address the clinical and etiological heterogeneity of suicidal behavior in adolescents, specifically suicidal ideation and depressive symptoms.

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Study	Population	Intervention	Comparison	Outcome	Abstract
78. Katz et al., 2020 [International] N= 5 *Review of reviews*	Emancipated adolescents Age:10-18 years Gender: Any	Mobile and web-based interventions; LEAP intervention, DBT coach app,	None	Ideation, behaviour attempts	The rates of suicidal behaviours in youth with out-of-home care experience, particularly those who are on the verge of emancipation, appear to be alarmingly high. The purpose of the current study is to highlight the rates of suicidal ideation and behaviour in these youth, illuminating the empirical risk factors that may increase their vulnerability. We offer a review of screening measures and suicide interventions that may hold promise for administrators, practitioners, and researchers who wish to provide comprehensive assessment for transition-aged youth with out-of-home care experiences and effectively treat those who may be at the highest risk.

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Study	Population	Intervention	Comparison	Outcome	Abstract
79. Kreuze and Ruggiero, 2018 [International] N=35	Adolescents Age: NA Gender: Any	technology-oriented suicide prevention interventions:	Pre-post self-report suicide planning and behaviour	Ideation, self-harm, attempts, death	Youth suicide is increasing in the United States. To moderate youth suicide, it is important to implement effective prevention programs and target modifiable protective and risk factors through intervention. This review examined programs that are consistent with these goals, specifically, technology-oriented suicide prevention programs included in the National Registry of Evidence-Based Programs and Practices (NREPP) and Best Practices Registry (BPR). Technology-oriented programs are highly accessible among adolescents, as well as adolescent gatekeepers. Gatekeepers were defined as adults in a community who frequently interact with youth in the community, and who may be trained to identify and refer at-risk youth (e.g., teachers, coaches, counsellors, parents). To understand the impact of these interventions, program efficacy (i.e., outcomes), program reach (i.e., population-level impact, level of technology integration), location of supporting program evidence (i.e., medical literature, Google Scholar, national registries, program organizational website), and quality of supporting research evidence (i.e., study design, quality of research ratings) were explored. PubMed, PsycINFO, PsycARTICLES, PASCAL, CINAHL, Scopus, Cochrane Library (n = 3,942); Google Scholar (n = 411); the NREPP (n = 127); the BPR (n = 114); and program organizational websites (n = 26) were searched. Published and unpublished studies (n = 35) were integrated. Review of technology-oriented interventions indicated that many have been found to improve secondary outcomes, suicide outcomes, and gatekeeper preparedness. Interventions also demonstrated potential for reach, as technology generally enhanced the spread of prevention content among adolescents and/or adolescent gatekeepers. However, the accessibility of evidence was often reduced through dispersion, as evidence was retained within multiple forums (i.e., medical literature, Google Scholar, national registries, program organizational websites). Finally, the quality of supporting research evidence was generally strong, although there was variability with regard to rigor in study design and inclusion of large samples. Additional research is important toward strengthening the evidence base, and additional evidence that is readily accessible may increase both reach and sustained use, to enhance overall impact.

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Study	Population	Intervention	Comparison	Outcome	Abstract
80. Kreuze et al., 2017 [International] N=16	Adults, adolescents Age: NA Gender: NA	Technology-Enhanced Interventions	TAU	Ideation, behaviour	**Objective:** Suicide prevention is a high priority. Scalable and sustainable interventions for suicide prevention are needed to set the stage for population-level impact. This systematic review explores how technology-enhanced interventions target suicide risk and protective factors, using the Centers for Disease Control and Prevention (CDC, 2015) Risk and Protective Factors Ecological Model. **Methods:** Information databases (PsycINFO, PubMed and CINAHL) were systematically searched and records including technology-enhanced interventions for suicide prevention (n=3764) were reviewed. Records with varying technologies and diverse methodologies were integrated into the search. **Results:** Review of the records resulted in the inclusion of 16 studies that utilized technology-enhanced interventions to address determinants of suicidal behaviour. This includes the use of standalone or, in most cases, adjunct technology-enhanced interventions for suicide prevention delivered by mobile phone application, text message, telephone, computer, web, CD-ROM and video. **Conclusion:** Intervention effectiveness was variable, but several technology-enhanced interventions have demonstrated effectiveness in reducing suicidal ideation and mental health co-morbidities. Large-scale research and evaluation initiatives are needed to evaluate the costs and long-term population-level impact of these interventions.

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Study	Population	Intervention	Comparison	Outcome	Abstract
81. Krysinska et. al., 2017 [International] N=24	Experienced of suicidal ideation or behaviour within the last 12 months Age Any Gender: Any	Psychosocial RCT exploring gender difference	TAU, waiting list	Ideation, behaviour	The objective of this study was to explore outcomes of preventive programs and psychosocial treatments for suicidal ideation and behaviour in gender sub-groups in mixed gender studies and in studies limited to one gender. The method used was a systematic review of randomized controlled trials (RCTs) which included women or men only or reported and = or examined outcomes of psychosocial interventions in mixed gender samples. A total of 27 (18%) of RCTs reported or examined differences in intervention outcomes. Of the mixed gender RCTs, 5 (33%) reported greater effectiveness for females than males. The review identified promising interventions in female-only samples. None of the trials reported greater effectiveness of the intervention in men. The majority of reviewed studies looking at treatment outcomes in gender sub-groups showed no differences between women and men or indicated that some psychosocial interventions are effective for women. There is a need for studies which look at gender effects and development of interventions more effective and appealing for men at risk of suicide.

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Study	Population	Intervention	Comparison	Outcome	Abstract
82. McCabe et al. 2018 [International] N= 4	Emergency ward attendees presenting with self-harm or suicide attempt Age: Any Gender: Any	3 Brief psychological interventions 3 RCTs and 1 quasi-experimental study in emergency settings Brief psychological Intervention and Contact (BIC), Attempted Suicide Short Intervention Program (ASSIP), Teen Options for Change (TOC), Safety Assessment and Follow-up Telephone Intervention (SAFTI)	TAU or enhanced TAU	Ideation, attempt, death	**Background:** Every year, more than 800,000 people worldwide die by suicide. The aim of this study was to conduct a systematic review of the effectiveness of brief psychological interventions in addressing suicidal thoughts and behaviour in healthcare settings. **Methods:** Following PRISMA guidelines, systematic searches were conducted in MEDLINE, CINAHL, EMBASE, the Cochrane Central Register of Controlled Trials and PsycINFO databases. A predefined search strategy was used. Two independent reviewers screened titles and abstracts followed by full texts against predefined inclusion criteria. Backward and forward citation tracking of included papers was conducted. Quality appraisal was conducted using the Cochrane Risk of Bias Tool for Randomized Controlled Trials and the CASP tool for randomised controlled trials. The small number and heterogeneity of studies did not allow for meta-analysis to be conducted. A narrative synthesis was conducted. **Results:** Four controlled studies of brief psychological interventions were included, conducted in Switzerland, the U.S. and across low and middle-income countries. Three studies were conducted with adults and one with adolescents. All studies were judged to be at low risk of bias. All of the interventions were implemented with patients after attending emergency departments and involved 3412 participants. The main outcomes were suicide, suicide attempts, suicidal ideation, depression and hospitalization. The components of the interventions were early therapeutic engagement, information provision, safety planning and follow-up contact for at least 12 months. The interventions drew to, different degrees, on psychological theory and techniques. Two trials that measured suicidal ideation found no impact. Two studies showed fewer suicide attempts, one showed fewer suicides and one found an effect on depression. **Conclusions:** Although the evidence base is small, brief psychological interventions appear to be effective in reducing suicide and suicide attempts. All studies to date have been conducted with people who had attended the ED but the interventions could potentially be adopted for inpatient and other outpatient settings. Early engagement and therapeutic intervention based on psychological theories of suicidal behaviour, sustained in follow-up contacts, may be particularly beneficial.

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Study	Population	Intervention	Comparison	Outcome	Abstract
83. Meerwijk et al. 2016 [Europe and North America] N=44	Adults, adolescents	RCT Psycho-social and behaviour interventions	TAU	Attempt, death	**Background** Psychosocial and behavioural interventions that address suicidal thoughts and behaviour during treatment (direct interventions) might be more effective in preventing suicide and suicide attempts than indirect interventions that address symptoms associated with suicidal behaviour only (eg, hopelessness, depression, anxiety, quality of life). To test this hypothesis, we did a systematic review and meta-analysis of psychosocial and behavioural interventions aimed at preventing suicide and suicide attempts. **Methods** For this systematic review and meta-analysis, we searched MEDLINE and PsycINFO from inception to Dec 25, 2015, for randomised controlled trials that reported suicides or suicide attempts as an outcome, irrespective of participants' diagnoses or the publication language. We excluded studies with pharmacological or device-based interventions, those that targeted communities or clinicians, primary prevention trials, and trials that reported events of non-suicidal self-injury as suicide attempts. Trials that had no suicides or suicide attempts in both groups were also excluded. Data were extracted by one investigator and independently verified by a second investigator. We used random-effects models of the odds ratio (OR) based on a pooled measure of suicides and the number of individuals who attempted suicide, immediately post-treatment and at longer-term follow-up. **Findings** Of 2024 unique abstracts screened, 53 articles met eligibility criteria and reported on 44 studies; 31 studies provided post-treatment data with 6658 intervention group participants and 6711 control group participants at baseline, and 29 studies provided follow-up data. The post-treatment difference between direct interventions and indirect interventions did not reach statistical significance at the 0·05 level (OR 0·62 [95% CI 0·45–0·87] vs 0·93 [0·77–1·12], p=0·06) and represented a large effect size (Cohen's d=0·77). At longer-term follow-up, the difference was not significant (OR 0·65 [0·46–0·91] vs 0·82 [0·70–0·96], p=0·25) but still represented a medium effect size (Cohen's d=0·47). These effect sizes emphasise the clinical importance of direct interventions. Post-hoc subgroup and sensitivity analyses showed that our results are robust and unlikely to be notably affected by between-study heterogeneity or publication bias. **Interpretation** Psychosocial and behavioural interventions that directly address suicidal thoughts and behaviour are effective immediately post-treatment and long term, whereas treatments indirectly addressing these components are only effective long term. Moreover, although the differences shown between direct and indirect strategies were non-significant, the difference in favour of direct interventions represented a large post-treatment improvement and medium improvement at longer-term follow-up. On the basis of these findings, clinicians working with patients at risk of suicide should address suicidal thoughts and behaviours with the patient directly. Although direct interventions are effective, they are not sufficient, and additional efforts are needed to further reduce death by suicide and suicide attempts. Continued patient contact might be necessary to retain long-term effectiveness.

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Study	Population	Intervention	Comparison	Outcome	Abstract
84. Melia et al., 2020 [International] N=7	All Age: Any Gender: Any	RCT Mobile applications (mHealth Technology) Apps: iBobbly (ACT), Virtual Hope Box, BlueIce, Acceptance and Commitment Therapy (ACT)m DBT, CBT and TEC	TAU	Ideation behaviour self-harm attempt	**Background:** Digital interventions are proposed as one way by which effective treatments for self-harm and suicidal ideation may be improved and their scalability enhanced. Mobile devices offer a potentially powerful medium to deliver evidence-based interventions with greater specificity to the individual when the intervention is needed. The recent proliferation of publicly available mobile apps designed for suicide prevention underlines the need for robust evidence to promote safe practice. **Objective:** This review aimed to examine the effectiveness of currently available mobile health (mHealth) technology tools in reducing suicide-specific outcomes. **Methods:** The following databases were searched: Cochrane Central Register of Controlled Trials (The Cochrane Library), MEDLINE, EMBASE, PsycINFO, and relevant sources of gray literature. All published and unpublished randomized controlled trials (RCTs), pseudo-RCTs, and pre-post observational studies that evaluated the effectiveness of mHealth technology in suicide prevention delivered via mobile computing and communication technology were included. Studies were included if they measured at least one suicide outcome variable (ie, suicidal ideation, suicidal intent, nonsuicidal self-injurious behavior, and suicidal behavior). A total of 2 review authors independently extracted data and assessed study suitability, in accordance with the Cochrane Collaboration Risk of Bias Tool, on July 31, 2018. Owing to the heterogeneity of outcomes found across studies, results were not amenable for pooled synthesis, and a meta-analysis was not performed. A narrative synthesis of the available research is presented here. **Results**: A total of 7 studies met criteria for inclusion. Four published articles that reported on the effectiveness of the following mobile phone apps were included: iBobbly, Virtual Hope Box, BlueIce, and Therapeutic Evaluative Conditioning. Results demonstrated some positive impacts for individuals at elevated risk of suicide or self-harm, including reductions in depression, psychological distress, and self-harm and increases in coping self-efficacy. None of the apps evaluated demonstrated the ability to significantly decrease suicidal ideation compared with a control condition. In addition, 3 unpublished and recently completed trials also met criteria for inclusion in the review. **Conclusions:** Further research is needed to evaluate the efficacy of stand-alone mHealth technology–based interventions in suicide prevention. The small number of studies reported in this review tentatively indicate that such tools may have a positive impact on suicide-specific outcomes. Future mHealth intervention evaluations would benefit from addressing the following 3 main methodological limitations : (1) heterogeneity of outcomes: a lack of standardized measurement of suicide outcomes across studies; (2) ecological validity: the tendency to exclude potential participants because of the elevated suicide risk may reduce generalizability within clinical settings; and (3) app regulation and definition: the lack of a standardized classification system for mHealth intervention type points to the need for better definition of the scope of such technologies to promote safe practice.

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Study	Population	Intervention	Comparison	Outcome	Abstract
85. Milner et al., 2015 [International] N=14	Individuals post hospital discharge (no age given)	Brief contact interventions: telephone contacts following presentation to an emergency department or healthcare facility; (b) emergency crisis cards or green cards; and (c) postcard or letter interventions	TAU	Self-harm attempts death	**Background** There is growing interest in brief contact interventions for self-harm and suicide attempt. **Aims** To synthesise the evidence regarding the effectiveness of brief contact interventions for reducing self-harm, suicide attempt and suicide. **Method** A systematic review and random-effects meta-analyses were conducted of randomised controlled trials using brief contact interventions (telephone contacts; emergency or crisis cards; and postcard or letter contacts). Several sensitivity analyses were conducted to examine study quality and subgroup effects. **Results** We found 14 eligible studies overall, of which 12 were amenable to meta-analyses. For any subsequent episode of self-harm or suicide attempt, there was a non-significant reduction in the overall pooled odds ratio (OR) of 0.87 (95% CI 0.74–1.04, P = 0119) for intervention compared with control. The number of repetitions per person was significantly reduced in intervention v. control (incidence rate ratio IRR = 066, 95% CI 0.54–0.80, P 50001). There was no significant reduction in the odds of suicide in intervention compared with control (OR = 0.58, 95% CI 0.24–1.38).**Conclusions** A non-significant positive effect on repeated self-harm, suicide attempt and suicide and a significant effect on the number of episodes of repeated self-harm or suicide attempts per person (based on only three studies) means that brief contact interventions cannot yet be recommended for widespread clinical implementation. We recommend further assessment of possible benefits in well-designed trials in clinical populations

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Study	Population	Intervention	Comparison	Outcome	Abstract
86. Okolie et al., 2017 [International] N=21	Older Adults Age: ≥65 years Gender: Any	RCT primary care-based interventions, pharmacotherapy, psychotherapy, telephone counseling programs (n=3), community-based multilevel programs (n=8) PROSPECT study IMPACT study: DEPS-GP trial	TAU	Ideation, behaviour death	**Background:** Older people have a high risk of suicide but research in this area has been largely neglected. Unlike for younger age groups, it remains unclear what strategies for prevention exist for older adults. This systematic review assesses the effectiveness of interventions to prevent suicidal behavior and reduce suicidal ideation in this age group. **Methods:** MEDLINE, EMBASE, PsycINFO, Web of Science, and Cochrane Central Register of Controlled Trials (CENTRAL) were searched for relevant publications from their dates of inception until 1 April 2016. Studies included in this review report effectiveness data about interventions delivered to older adults to prevent suicidal behavior (suicide, attempted suicide, and self-harm without suicidal intent) or reduce suicidal ideation. A narrative synthesis approach was used to analyze data and present findings. **Results:** Twenty-one studies met the criteria for inclusion in the study. Most programs addressed risk predictors, specifically depression. Effective interventions were multifaceted primary care-based depression screening and management programs; treatment interventions (pharmacotherapy and psychotherapy); telephone counselling for vulnerable older adults; and community-based programs incorporating education, gatekeeper training, depression screening, group activities, and referral for treatment. Most of the studies were of low quality apart from the primary care-based randomized controlled trials. **Conclusions:** Multifaceted interventions directed at primary care physicians and populations, and at-risk elderly individuals in the community may be effective at preventing suicidal behavior and reducing suicidal ideation in older adults. However, more high quality trials are needed to demonstrate successful interventions.

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Study	Population	Intervention	Comparison	Outcome	Abstract
87. Ougrin et al., 2015 [International] N=19	Adolescents Age:10-19 years Gender: any	RCT therapeutic interventions: psychological or social intervention	TAU or placebo	Self-harm attempt	**Objective:** Suicidal behavior and self-harm are commonin adolescents and are associated with elevated psychopathology, risk of suicide, and demand for clinical services. Despite recent advances in the understanding and treatment of self-harm and links between self-harm and suicide and risk of suicide attempt, progress in reducing suicide death rates has been elusive, with no substantive reduction in suicide death rates over the past 60 years. Extending prior reviews of the literature on treatments for suicidal behavior and repetitive self-harm in youth, this article provides a meta-analysis of randomized controlled trials (RCTs) reporting efficacy of specific pharmacological, social, or psychological therapeutic interventions (TIs) in reducing both suicidal and non-suicidal self-harm in adolescents. **Method:** Data sources were identified by searching the Cochrane, Medline, PsychINFO, EMBASE, and PubMed databases as of May 2014. RCTs comparing specific therapeutic interventions versus treatment as usual (TAU) or placebo in adolescents (through age 18 years) with self-harm were included. **Results:** Nineteen RCTs including 2,176 youth were analyzed. TIs included psychological and social interventions and no pharmacological interventions. The proportion of the adolescents who self-harmed over the follow-up period was lower in the intervention groups (28%) than in controls (33%) (test for overall effect= 2.31; p<0.02). TIs with the largest effect sizes were dialectical behavior therapy (DBT), cognitive-behavioral therapy (CBT), and mentalization-based therapy (MBT). There were no independent replications of efficacy of any TI. The pooled risk difference between TIs and TAU for suicide attempts and non-suicidal self-harm considered separately was not statistically significant. **Conclusion:** TIs to prevent self-harm appear to be effective. Independent replication of the results achieved by DBT, MBT, and CBT is a research priority.

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Study	Population	Intervention	Comparison	Outcome	Abstract
88. Pestaner et al. 2019 [International] N=6	School attendees Age: <18 years Gender: Any	School-Nurse/ gate keeps in school-based suicide interventions	Pre / post intervention	Death	Suicide rates among children and adolescents have continued to rise over the past decade indicating the need for school-based suicide prevention programs. School nurses (SNs) are well positioned to assist in assessment, early identification, and intervention of at-risk students. This integrative review aimed to (1) critically examine the role of the SN in school-based suicide interventions, (2) explore potential barriers preventing the SN from participating in suicide interventions, and (3) recommend strategies to build capacity for principles of school nursing practice in suicide intervention. The National Association of School Nurses' Framework for 21st Century School Nursing Practice was used to categorize interventions and outcomes related to suicide prevention. Findings demonstrate a lack of reported nursing interventions directly linked to student outcomes and suggest obscurity in the role of the SN. Recommendations for future research and strategies to build capacity for principles of school nursing practice are provided.
89. Pirkis et al., 2015 [International] N= 18	All populations Age: Any Gender: Any	Means restrictions at suicide hotspots (n=11) Encouragement of help seeking (n=4) Increasing likelihood of third-party intervention (n=5)	Pre/ post intervention	Death	**Background** Various interventions have been introduced to try to prevent suicides at suicide hotspots, but evidence of their effectiveness needs to be strengthened. **Methods** We did a systematic search of Medline, PsycINFO, and Scopus for studies of interventions, delivered in combination with others or in isolation, to prevent suicide at suicide hotspots. We did a meta-analysis to assess the effect of interventions that restrict access to means, encourage help-seeking, or increase the likelihood of intervention by a third party. **Findings** We identified 23 articles representing 18 unique studies. After we removed one outlier, interventions that restricted access to means were associated with a reduction in the number of suicides per year (incidence rate ratio 0·09, 95% CI 0·03–0·27; p<0·0001), as were interventions that encourage help-seeking (0·49, 95% CI 0·29–0·83; p=0·0086), and interventions that increase the likelihood of intervention by a third party (0·53, 95% CI 0·31–0·89; p=0·0155). When we included only those studies that assessed a particular intervention in isolation, restricting access to means was associated with a reduction in the risk of suicide (0·07, 95% CI 0·02–0·19; p<0·0001), as was encouraging help-seeking (0·39, 95% CI 0·19–0·80; p=0·0101); no studies assessed increasing the likelihood of intervention by a third party as a lone intervention. **Interpretation.** The key approaches that are currently used as interventions at suicide hotspots seem to be effective. Priority should be given to ongoing implementation and assessment of initiatives at suicide hotspots, not only to prevent so-called copycat events, but also because of the effect that suicides at these sites have on people who work at them, live near them, or frequent them for other reasons.

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Study	Population	Intervention	Comparison	Outcome	Abstract
90. Pistone et al., 2019 [International] N=41	Students and school-goers	Gatekeeper training (n=14) School-based education interventions targeting youth (n=25) Suicide ideation specifically (n=2) (33 RTC, 8 quasi-experimental)	Treatment as usual	Ideation attempt	**Background:** Suicide is a major public health problem. Educational interventions for preventing suicidal behaviour are widely used, although little is known regarding the collective effectiveness of these interventions. **Aim:** We evaluated the existing evidence for the effectiveness of education interventions in the prevention of suicidal behaviour. **Methods:** In this systematic review and meta-analysis, we searched multiple databases using terms related to suicide prevention. The articles were reviewed by two independent reviewers, and the quality of evidence was rated according to Grading of Recommendations Assessment, Development and Evaluation (GRADE) criteria. Data from individual studies were combined in meta-analyses. **Results:** We identified 41 studies evaluating two different types of interventions: school-based education interventions and gatekeeper training. Education interventions showed significant gains in terms of knowledge and attitudes, though the effects seem to vary depending on subjects' personal characteristics. School-based education interventions significantly reduced suicidal ideation and suicide attempts in youths. Gatekeeper training showed no significant effect on suicide attempts or gatekeeper skills, though the quality of evidence for the estimate, according to GRADE criteria, was rated as very low. **Conclusion:** The results of this study indicate that school-based education interventions are effective in preventing suicidal ideation and suicide attempts. In clinical practice, as well as in research, the development and implementation of educational interventions should focus on participants' individual characteristic.

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Study	Population	Intervention	Comparison	Outcome	Abstract
91. Robinson et al., 2013 [International] N=43	School aged adolescents	school-based interventions: indicated interventions, postvention Universal = 15: increasing knowledge of warning signs/ risk factors/ help seeking Selective= 23: gatekeeper training, screening programs, Indicated= 3 Postvention= 2	Enrolled on alternative personal development course/ No intervention	Behaviour	**Background:** Suicide, in particular among young people, is a major public health problem, although little is known regarding effective interventions for managing and preventing suicide-related behavior. **Aims:** To review the empirical literature pertaining to suicide postvention, prevention, and early intervention, specifically in school settings. **Method:** MEDLINE, PsycINFO, and the Cochrane Central Register of Controlled Trials (CCRCT) as well as citation lists of relevant articles using terms related to suicide and schools were searched in July 2011. School-based programs targeting suicide, attempted suicide, suicidal ideation, and self-harm where intent is not specified were included. No exclusion was placed on trial design. All studies had to include a suicide-related outcome. **Results:** A total of 412 potentially relevant studies were identified, 43 of which met the inclusion criteria, as well as three secondary publications: 15 universal awareness programs, 23 selective interventions, 3 targeted interventions, and 2 postvention trials. **Limitations:** Overall, the evidence was limited and hampered by methodological concerns, particularly a lack of RCTs. **Conclusions:** The most promising interventions for schools appear to be gatekeeper training and screening programs. However, more research is needed.

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Study	Population	Intervention	Comparison	Outcome	Abstract
92. Rojas et al., 2019 [USA] N=8	All Age: Any Gender: Any	Telemental health (two-way synchronous clinical video telehealth; CVT)	Case examples, pre/post	Ideation behaviour	**Introduction:** Despite recent advancements in the development of new suicide prevention interventions, suicide rates continue to rise in the United States. As such, suicide prevention efforts must continue to focus on expanding dissemination of suicide-specific interventions. **Methods:** This review explores telemental health through two-way synchronous clinical video telehealth (CVT) technologies as one approach to improving access to suicide-specific interventions. **Results:** Studies were reviewed if (1) the modality of interest was telemental health by CVT and (2) management, assessment, or intervention of suicidal thoughts or behaviors was discussed. A total of 22 studies were included. **Conclusions**: Findings from the limited existing studies are synthesized, and recommendations are provided for future research, clinical, and educational advancements
93. Sander et al., 2020 [International] N=24	adults, adolescents Age: Any Gender: Any	internet-based interventions; (provided with human support and guidance via e-mail, chat, webcam or telephone or as strictly self-help interventions without human support) (n=24)	TAU, pre/post	Ideation behaviour	**Background:** The number of studies examining internet-based interventions (IBIs) for depression is increasing. Although many individuals with depression experience suicidal ideation, there is only insufficient information available on how to manage and support individuals at risk of suicide in IBI trials. Here, we examined the current practice regarding the management of individuals experiencing suicidal thoughts or behaviors in studies of IBIs for depression. **Methods:** Information pertaining to the management of suicidality was extracted from 24 studies. Additionally, researchers in the field completed a questionnaire (n= 13) before being interviewed (n= 11) about their procedures and considerations regarding the management of suicidality. **Results:** In most trials (N= 17; 71%), individuals at risk of suicide were excluded based on varying criteria. N= 7 studies used structured interviews and N= 5 studies used single items of self-report questionnaires for assessing suicidality. The nature and degree of support provided to individuals at risk of suicide varied and only one intervention comprised suicide-specific content. **Limitations**: Most experts referred to research on interventions with some level of human support (e.g. written feedback) which might limit the representativeness of the results of the interviews for unguided interventions. **Conclusions:** Suicidality is often treated more as an exclusion criterion rather than a treatable condition in research on IBIs for depression. This paper provides an overview of the current practice and gives recommendations for the design of future trials.

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Study	Population	Intervention	Comparison	Outcome	Abstract
94. Silva et al., 2013 [International] N=57	Young people (n=10 studies included mental illness) Age: 6-25 years Gender: Any	32 psychological interventions (most commonly individual or group problem-solving therapy, n=6; psychoeducation, n= 6). 2 medication interventions 3 complimentary/ alternative interventions (after-care contact; emergency “green card,”; therapeutic writing); 3 service/ delivery improvement interventions (rapid response outpatient treatment; specialized emergency room intervention; specialized hospital service).	TAU	Self-harm death	**Background:** Suicide and self-harm (SSH) in young people is a major cause of disability-adjusted life years. Effective interventions are of critical importance to reducing the mortality and morbidity associated with SSH. **Aims:** To investigate the extent and nature of research on interventions to prevent and treat SSH in young people using evidence mapping. **Method:** A systematic search for SSH intervention studies was conducted (participant mean age between 6–25 years). The studies were restricted to high-quality evidence in the form of systematic reviews, meta-analyses, and controlled trials. **Results:** Thirty-eight controlled studies and six systematic reviews met the study inclusion criteria. The majority (n= 32) involved psychological interventions. Few studies (n= 9) involved treating young people with recognized mental disorders or substance abuse (n= 1) which also addressed SSH. **Conclusion:** The map was restricted to RCTs, CCTs, systematic reviews, and meta-analyses, and thus might have neglected important information from other study designs. The effectiveness of interventions within the trials was not evaluated. The evidence base for SSH interventions in young people is not well established, which hampers best-practice efforts in this area. Promising interventions that need further research include school-based prevention programs with a skills training component, individual CBT interventions, interpersonal psychotherapy, and attachment-based family therapy. Gaps in the research exist in evaluations of interventions for SSH in young people with identifiable psychopathology, particularly substance use disorder, and research that classifies participants on the basis of their suicidal intent.

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Study	Population	Intervention	Comparison	Outcome	Abstract
95. Ward et al., 2013 N=65	Adults 18+	psycho-social interventions, CBT, DBT, family therapy, counselling, art therapy	Pre/ post	Ideation self-harm	**Background:** The efficacy of interventions and treatments for self-harm is well researched. Previous reviews of the literature have highlighted the lack of definitively effective interventions for self-harm and have highlighted the need for future research. These recommendations are also reflected in clinical guidelines published by the National Institute for Health and Clinical Excellence (NICE, 2004) which also call for service user involvement in studies of treatment efficacy. **Aims:** A systematic review was undertaken to determine: a) what contributions service users have made to the evaluation of psycho-social interventions; b) by what methods have service users been involved; c) in what ways could service user involvement supplement empirical evidence for interventions. **Methodology:** Electronic searches were completed on the 28th January 2011 of the Medline (1950–present), Web of Science (1898–Present), Web of Science (including Science Citation Index and the Social Science Citation Index), the Cochrane database of systematic reviews, and Psychinfo (1979–present) databases using a combination of 13 search terms. References were independently sifted according to set criteria by two of the authors to ensure inter-rater reliability. **Results:** Sixty-five references were included in the review. Of these, 59% of studies were empirically based, and 26% used qualitative data collection methods to gather service user narratives. Only 8% of studies used a mixed-methodology to combined qualitative and quantitative data collection. No studies featured service user involvement.

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Study	Population	Intervention	Comparison	Outcome	Abstract
96. Winters et al., 2017 [International] N= 17	Prison population with serious mental illness Age: NA Gender: NA	Psychological, systemic peer support and pharmacological	TAU or Pre/post	Ideation, behaviour death	Suicide is one of the leading causes of inmate deaths in correctional settings. Furthermore, there is heightened risk for suicide among individuals diagnosed with serious mental illness (SMI) who present in jails and prisons. In the present article, the authors review suicide risk factors associated with SMI, with emphasis on incarcerated individuals, and discuss the best practices in assessing risk for suicide. The authors review interventions designed to prevent suicide among individuals with SMI in forensic settings. The article also points to the need for continued research to inform the development of assessment tools and intervention strategies for this population.
97. Zappegno et al., 2019 [International] N=7	Adults with depression Age: >60 years Gender: Any	RCT Psychosocial interventions for suicidal ideation and behaviour, quasi-experimental, observational, care report.	TAU	Ideation behaviour	In Europe the elderly population is projected to increase from 18.5% (93.9 million) in2014 to 28.7% (149.1 million) by 2080. In the United States it is estimated that by2030 more than 20% of the population will be aged 65 years or over. This specific population is at high risk of unrecognized or untreated psychiatric illnesses and suicide. It is well known that completed suicide rate increases with age in both men and women. Although elderly people attempt suicide less often than other age groups, they show a higher completion rate. Generally, the methods chosen by elderly are more lethal, the intent is more serious, they are more determined, and they show fewer warning signs than the younger population. A recent systematic review and meta-analysis of psychosocial intervention, following self-harm in adults, found that cognitive behavioral therapy was the most effective therapy in these patients. Unfortunately, there have been few reported trials of other potentially effective interventions. Because the scientific literature on psychosocial suicide prevention interventions in the elderly is still scant, we conducted a mini review in order to take stock of the situation. Studies were identified through electronic searches of the Cochrane library, MEDLINE, Scopus and the Web of Science databases. PRISMA guidelines were followed and only seven articles met the inclusion criteria. No firm conclusions can be drawn about this topic because there is still very little data and studies use inconsistent outcome measures and designs. Nonetheless, the existing data suggests that psychosocial interventions are promising.

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Study	Population	Intervention	Comparison	Outcome	Abstract
98. Wasserman et al. (2015) [Europe] 3 interventions	School students Age: 14-16 Gender: Any	RCT 1. Question, Persuade, Refer (QPR) 2. Youth Aware of Mental Health Program (YAM) 3. Screening by Professionals (ProfScreen).	TAU	Ideation; behaviour (attempt)	**Background:** Suicidal behaviours in adolescents are a major public health problem and evidence-based prevention programmes are greatly needed. We aimed to investigate the efficacy of school-based preventive interventions of suicidal behaviours. **Methods:** The Saving and Empowering Young Lives in Europe (SEYLE) study is a multicentre, cluster-randomised controlled trial. The SEYLE sample consisted of 11 110 adolescent pupils, median age 15 years (IQR 14–15), recruited from 168 schools in ten European Union countries. We randomly assigned the schools to one of three interventions or a control group. The interventions were: (1) Question, Persuade, and Refer (QPR), a gatekeeper training module targeting teachers and other school personnel, (2) the Youth Aware of Mental Health Programme (YAM) targeting pupils, and (3) screening by professionals (ProfScreen) with referral of at-risk pupils. Each school was randomly assigned by random number generator to participate in one intervention (or control) group only and was unaware of the interventions undertaken in the other three trial groups. The primary outcome measure was the number of suicide attempt(s) made by 3 month and 12 month follow-up. Analysis included all pupils with data available at each timepoint, excluding those who had ever attempted suicide or who had shown severe suicidal ideation during the 2 weeks before baseline. This study is registered with the German Clinical Trials Registry, number DRKS00000214. **Findings:** Between Nov 1, 2009, and Dec 14, 2010, 168 schools (11 110 pupils) were randomly assigned to interventions (40 schools [2692 pupils] to QPR, 45 [2721] YAM, 43 [2764] ProfScreen, and 40 [2933] control). No significant differences between intervention groups and the control group were recorded at the 3 month follow-up. At the 12 month follow-up, YAM was associated with a significant reduction of incident suicide attempts (odds ratios [OR] 0·45, 95% CI 0·24–0·85; p=0·014) and severe suicidal ideation (0·50, 0·27–0·92; p=0·025), compared with the control group. 14 pupils (0·70%) reported incident suicide attempts at the 12 month follow-up in the YAM versus 34 (1·51%) in the control group, and 15 pupils (0·75%) reported incident severe suicidal ideation in the YAM group versus 31 (1·37%) in the control group. No participants completed suicide during the study period. Interpretation YAM was effective in reducing the number of suicide attempts and severe suicidal ideation in school-based adolescents. These findings underline the benefit of this universal suicide preventive intervention in schools.

BPD= Borderline Personality Disorder; DTC= Dialectical Behaviour Therapy; TAU= Treatment As Usual. Total studies may not reflect individual lists, this is because some studies had more than one outcome variable or intervention approach.

Table 4. Recommendations for working with people affected by suicide

Table 4.1 below was directly extracted from:

> Littlewood, D. L., Harris, K., Gooding, P., Pratt, D., Haddock, G., & Peters, S. (2019). Using my Demons to Make Good: The Short- and Long-Term Impact of Participating in Suicide-Related Research. *Archives of Suicide Research*, (early view). https://doi.org/10.1080/13811118.2019.1663330.

Table 4.1. Littlewood et al.'s (2019) recommendations for researchers conducting suicide-related research

Discuss the following points with potential participants to ensure they have a clear understanding of potential benefits and risks prior to consent:

Recommendation	Illustrative quotes
Give an overview of the possible positive and negative effects that the research could have on the participant.	*"To maybe expect a dip in mood for a little while but then ultimately it getting it out there can help and it can improve your self-esteem a little bit 'cause you think well I'm doing something that might help other people in the future."* Study 1, ID17, time point 2.
Make the withdrawal process clear.	*"The important thing is to say it's voluntary and you can drop out if you want and not give any reasons."* Study 2, ID024, time point 1.
Outline the potential impact of the research findings.	*"What the research is going to be used for so that they can see for themselves whether it's going to be a justification of the research and where's it's going to lead to."* Study 1, ID19, time point 2.
Clearly explain the research processes in order to alleviate any apprehension which stems from participants not knowing what to expect.	*"Some people don't realize like, that they talk about their experiences a lot anyway and it's kind of no different really. It's just in a bit of a different setting and [I] think if people knew … what it involved more then I think they'd be more open to trying it."* Study 1, ID8 time point 2. *"You said that if you like to take a break when you like, you can get a drink when you like and you can do that as long as you like, […] as long as you're offering people a comfort break, and if somebody is feeling kind of overwhelmed by talking, the fact that you know you could take it up on a second occasion."* Study 2, ID017 time point 2.
Explicitly establish the research environment as a non-judgmental, open setting.	*"Being able to talk about it with someone who's understanding and isn't gonna judge you for what you say 'cause some of the things that go round your head seem quite outrageous and you wouldn't really want to talk about that with most people."* Study 1, ID11 time point 2.

(cont.)

(Table 4.1. cont.)

Include the following provisions to support and safeguard participants:

Recommendation	Illustrative quotes
Start the research interview with topics which are emotionally undemanding to allow the participant to become comfortable before building up to asking about suicide.	*"Don't jump straight in about the whole suicide thing. Let it come."* Study 2, ID029, time point 1.
Consider including a condition within the consent form to break confidentiality and refer the participant for health-care support should the participant indicate any current risk of suicidal thoughts or behaviours.	*"Again just make sure you've covered all the base, […] saying if there's anything that bothers you, you'll tell the health care, just make sure all the safeguards are there, 'cause every person with a mental health problem is different, and you don't know how they'll react."* Study 1, ID7, time point 2.
Remain in contact with participants post-participation to check their wellbeing and facilitate access to support as necessary.	*"It did it made me think quite a bit to be honest, about various things and I must admit I did come down a bit … and I had a few bad days."* Study 1, ID7 time-point 2.

Table 4.2. Hom et al.'s (2020) Suicide attempt survivors' recommendations for how providers can improve their interactions with attempt survivors

Table 4.2 below was directly extracted from:

Hom, M. A., Bauer, B. W., Stanley, I. H., Boffa, J. W., Stage, D. L., Capron, D. W., … Joiner, T. E. (2020). Suicide Attempt Survivors' Recommendations for Improving Mental Health Treatment for Attempt Survivors. *Psychological Services*, (early view). https://doi.org/10.1037/ser0000415

Theme	Representative quotes
Do not stigmatize patients. Do not convey stigma, blame, shame, and/or judgment to patients.	*"Healthcare professionals need to be less judgmental and more empathetic. We don't want to be treated like we are broken."* *"Shame, 'tough love,' and pity aren't effective responses to someone who's just attempted to end their life."* *"Treat us without looking down on us like we did something wrong or that we are bad because we've attempted."* *"Stop treating us like we're either criminals or so fragile that any mention of anything negative will make us break."*
Empathize with patients. Express empathy, understanding, compassion, and/or validation.	*"[Be] compassionate and understanding [about] what can lead to a person attempting suicide…"* *"Respect and validate the emotions and thoughts that led to the suicide attempt…"* *"Often, a sympathetic ear can be the most vital thing for a suicidal person. They want to know that they're not alone, that they're understood, and that there is a healthy way out of this."*
Listen to patients. Take time to fully listen to patients; do not make assumptions.	*"Actively listen to what the patient is saying."* *". . . don't interrupt when we're trying to answer your questions."* *"Take time to listen and make sure you're not jumping to conclusions."*
Do not dehumanize patients. Respect patients; view each patient as a unique individual and not a statistic or diagnosis.	*"[H]umanize them instead of treating them as purely psych cases who are not worthy of respect or kindness…"* *"…humanize the survivor more instead of the cold clinical approach that leaves them feeling alienated from the process that they need help from."* *"Mak[e] the patient feel heard and validated and not like they're another number or statistic or someone to blame."*

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(Table 4.2. cont.)

Theme	Representative quotes
Collaborate with patients. Trust patients' own expertise; consider patient feedback and personal goals; respect patients' preferences	*"Listen to their experiences and trust they know how they feel and what they need to stay well."* *"[Work] collaboratively around safety plans and treatment goals."* *"If a patient isn't behaving the way you want, ask them why."* *"[Work] together as a team."*
Create a safe space. Foster an environment where patients feel comfortable talking openly about suicidal thoughts and behaviours.	*"Create safe places for individuals to go and open up without fear or judgment."* *"…I need a place I know I can speak freely without being afraid someone is going to act to take away my power and choices."* *"[P]eople need to know they are safe to talk about their feelings and thoughts.* *[T]hey need to know they are in a safe place."*
Take patients seriously. Do not minimize/dismiss suicidality; take patients' disclosure of suicidal thoughts and behaviours seriously.	*"Be respectful and take the patient seriously."* *"The attitude I received [in the hospital] was awful, like I was a waste of time, and wasn't taken seriously . . ."* *"[I've] had many psych and medical nurses mock me for suicide attempts, tell me [I] was playing games, doing it for attention . . ."*
Do not show and/or convey fear. Do not react to patients' suicidality with fear/ discomfort; do not hyperfocus on liability concerns.	*"Don't freak out about it. Your fear can be obvious…"* *"We don't want the doctor to worry about covering his own ass more than he cares about seeing us get better."*
Be patient. Be patient; do not expect and/or pressure patients to immediately improve.	*"[Do not] push too hard too fast on 'getting better.'"* *"… realize that it takes a long time and a lot of work to get through surviving a* *suicide attempt…"*

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