

Self-harm and suicide module - evidence profile SUI1: Safety planning interventions for persons with thoughts or plans of self-harm in the last month or acts of self-harm in the last year

WHO mhGAP guideline update: Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders

2023

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Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders, available at: <https://www.who.int/publications/i/item/9789240084278>

1. Background

The 'safety planning intervention' (SPI) is a standalone brief intervention for people acute care settings experiencing suicidal distress or recent self-harm (including suicide attempts) and was first described by Stanley and Brown (2012).

The main purpose of the SPI is to provide support to people in acute suicidal distress or crisis. It provides a specific set of concrete strategies to use in order to decrease the risk of imminent suicidal thoughts or behaviour (early intervention) and to interrupt this process in the future. In general, the safety plan should be based on a comprehensive risk assessment to facilitate shared understanding and rapport building and consists of a written list of tailored coping strategies and sources of support that people with a recent history of suicidal thoughts or self-harm (including suicide attempts) can use to alleviate a suicidal crisis (Stanley & Brown, 2012). It is estimated to take less than an hour to complete (Stanley & Brown, 2012). An important feature of the safety plan is the co-creation of the plan by involving the client, worker and often carer(s) or support person(s). It can be delivered as a standalone intervention in emergency or acute care settings (Stanley & Brown, 2012) yet, as a component, a safety plan is frequently administered alongside additional intervention components in outpatient or community settings (e.g. cognitive behavioural therapy for suicide prevention; Stanley et al., 2009).

The SPI as a standalone acute intervention contains 6 key steps. Steps (a) through (e) are completed sequentially from an internal to external focus in the event of acute suicidal distress or when warning signs are noticed (Stanley & Brown, 2012). The final step (f) is a key component of SPI and is collaboratively agreed upon.

- i) recognizing warning signs of an impending suicidal crisis.
- ii) employing internal coping strategies.
- iii) utilizing social contacts and social settings as a means of distraction from suicidal thoughts.
- iv) utilizing family members or friends to help resolve the crisis.
- v) contacting mental health professionals or agencies; and
- vi) restricting access to lethal means.

The target scoping question for the current review was 'Is SPI better than treatment as usual (TAU) for persons with thoughts or plans of self-harm in the last month or acts of self-harm in the last year?'

2. Methodology

The review was carried out in two steps. The first step was to identify by way of a comprehensive, systematic search of the literature for the most recent and updated systematic review published from January 2010 until January 2022, as per the below criteria. Based on step one, step two was to update the most recent and comprehensive systematic review on the topic, by systematically checking if there are additional primary studies published after the most recent and updated systematic review until February 2022.

2.1. PICO Question

The question to be answered by the current report is as follows: “Is SPI better than TAU for persons with thoughts or plans of self-harm in the last month or acts of self-harm in the last year?”

This will be investigated within the following PICO (population, intervention, comparator, outcome) framework:

Population (P): persons with plans or acts of self-harm (in the general population)

Intervention (I): SPI (as described by Stanley & Brown, 2012)

Comparator (C): TAU

Outcomes (O): thoughts or plans of self-harm and acts of self-harm

List critical outcomes:

- **Critical outcome 1:** suicide mortality
- **Critical outcome 2:** acts of self-harm

List important outcomes:

- **Important outcome 1:** thoughts of self-harm in last month
- **Important outcome 2:** plans of self-harm in last month

Subgroups: gender
wide age groups – youth, older adults, working age
country level income

2.2. Search strategy

MEDLINE (Medical Literature Analysis and Retrieval System Online), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase (Excerpta Medica Database), Scopus, PsycInfo, Cochrane Library (for reviews, trials, protocols), Global Index Medicus (GMI) and Epistemonikos databases were searched, as well as the international prospective register of systematic reviews (PROSPERO) registry.

Strategy to identify relevant literature:

The search string used in the most recently published and comprehensive systematic literature review was considered as reasonably wide to cover all studies of interest. The following search string was used: (selfharm OR (4uicide* NOT (euthanasia OR “assisted suicide”))) AND (safety plan*) for words appearing in abstracts, titles, and keywords.

We used the following inclusion criteria:

- *Type of studies:* intervention studies (trials)
- *Types of participants:* people experiencing self-harm or suicidal ideation/plans
- *Types of interventions:* SPI (standalone; as per Stanley & Brown, 2012)
- *Types of outcome measures:* suicide mortality, acts of self-harm and thoughts or plans of self-harm
- *Published language of study:* any language
- *Date range:* Beginning of January 2010 to the end of February 2022 for systematic literature reviews and based on the most recent SLR, searches were updated for individual primary studies published from May 2020 until February 2022.

2.3. Data collection and analysis

The traditional approach was followed to identify relevant studies as recommended by the WHO (World Health Organization) in Chapter 8 of the Handbook for Guideline Development (WHO, 2014).

- records retrieved from the bibliographic databases were recorded and duplicates removed.
- records were assessed for eligibility by examining their titles and abstracts according to the inclusion and exclusion criteria (presented above) by two independent researchers, all records included by at least by one researcher moved to the following round to ensure comprehensiveness.
- the full texts of the articles included were then retrieved and examined in line with the inclusion and exclusion criteria (presented above).
- data from eligible studies was extracted into pre-defined templates that include the characteristics of the study population, intervention, comparator, outcomes, and main findings.

The search strategy and results are documented at each step and have been presented in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Page et al., 2021), which includes the number of excluded articles and the reasons for their exclusion at the full-text screening stage.

2.4. Selection and coding of identified records

The records obtained from the searches were managed and deduplicated in EndNote using the inbuilt duplication feature, any remaining duplicates were deleted by hand. Screening of titles and abstracts, and full texts, was managed in Microsoft Excel. A copy of the Endnote reference library in electronic format (without attached pdfs of included publications), and Microsoft Excel sheet is supplied alongside the final report.

2.5. Quality assessment

The AMSTAR2 (Assessing the Methodological quality of SysTemAtic Reviews) (Shea et al., 2017) was used to assess systematic reviews and the GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach (Schünemann, Brożek, Guyatt, & Oxman, 2013) for assessing confidence in the evidence of the review.

2.6. Analysis of subgroups or subsets

We aimed to examine the main differences by region, level of the income (low- and middle-income countries vs high-income countries), gender and wide age groups, if possible.

3. Results

Based upon the first step of systematic searches, three relevant systematic reviews were identified. Each review was published in 2021 with searches concluding at various points in 2019 – 2020 (i.e. within the last two years). For the second step of systematic searches, the review with the most recent and specific focus on the effectiveness of the SPI (as defined by Stanley & Brown, 2012) was identified (Ferguson, Rhodes, Loughhead, McIntyre, & Procter, 2021). The searches conducted by Ferguson and colleagues (2021) concluded in May of 2020, and for the purposes of the current mhGAP review, updated searches were completed to identify any additional primary studies published after the searches by Ferguson and colleagues (2021) concluded until end of February 2022. A slightly more recent review (with searches concluding December 2020) was identified and included in the GRADE tables.

3.1. Systematic reviews and/or studies identified by the search process

Figure 1: PRISMA 2020 flow diagram for systematic reviews which included searches of databases and registers only (Step 1)

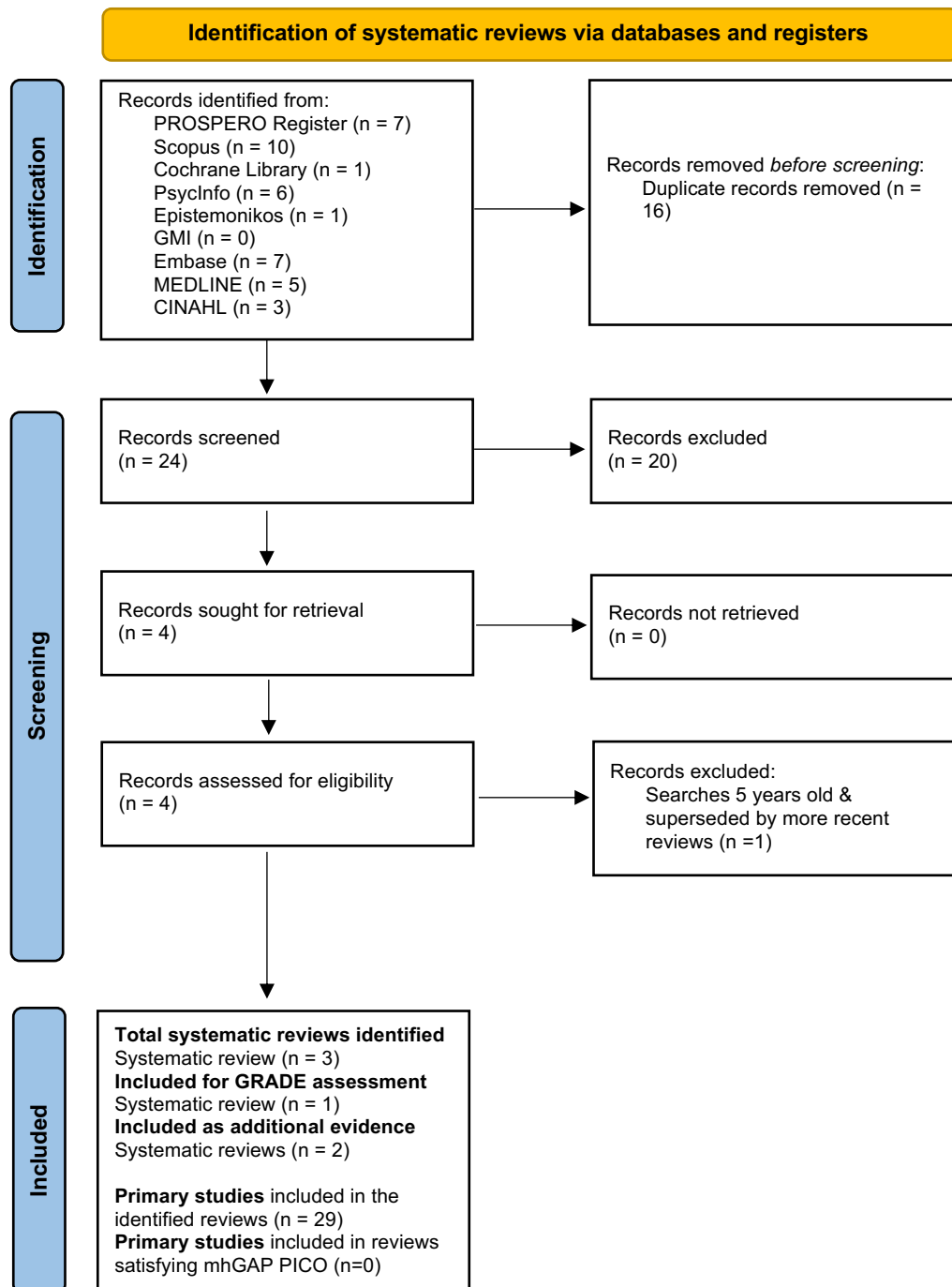
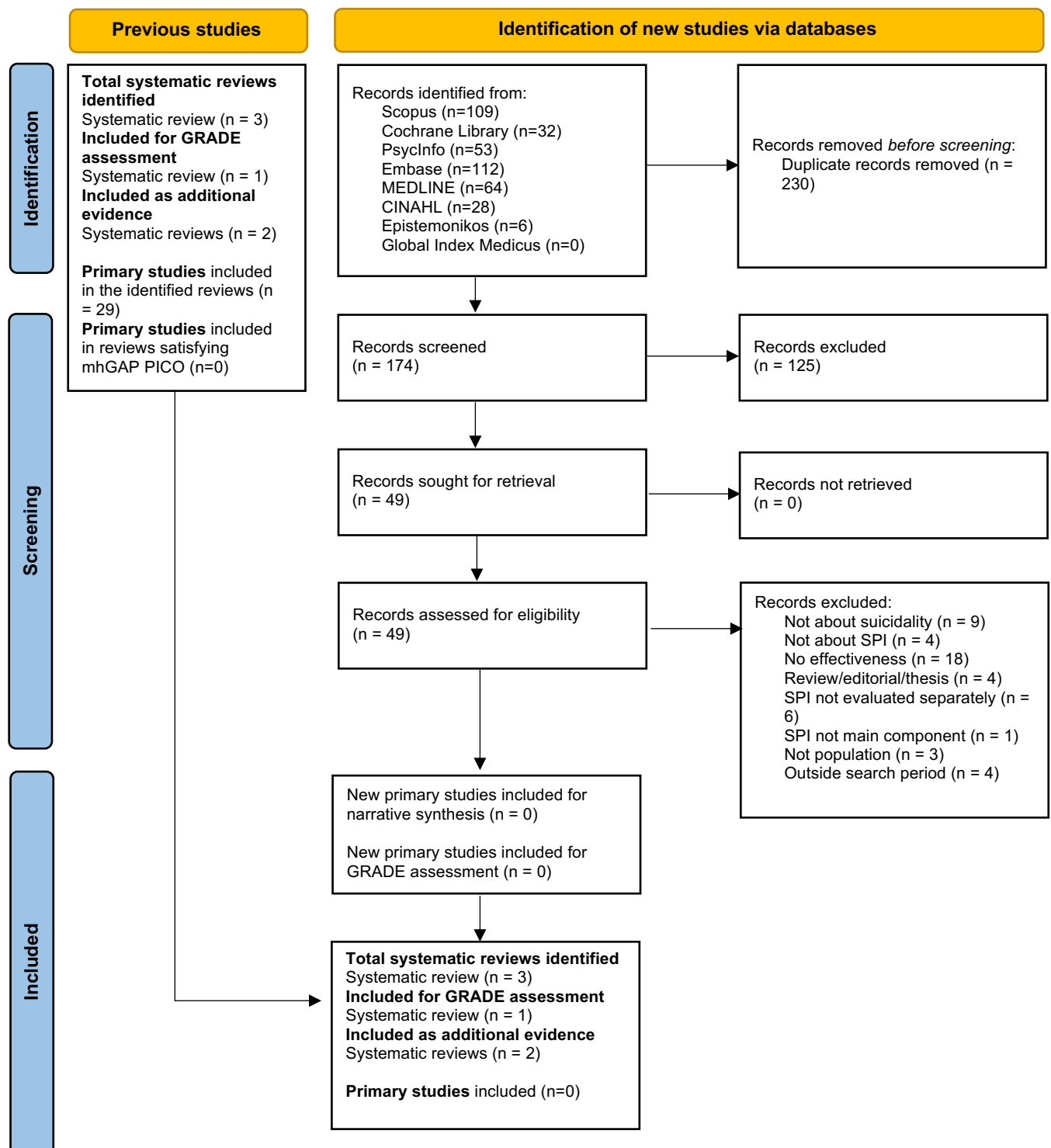


Figure 2: PRISMA 2020 flow diagram for Step 2 updated search of previously identified systematic review (Step 1) which included searches of databases and registers only



3.1.1. Included in GRADE tables/footnotes

Only one identified review was included in the GRADE tables as it satisfied the PICO (see table 1), however this review (Stallman & Allen, 2021) found no eligible studies.

Stallman, H. M., & Allen, A. (2021). Acute suicide prevention: A systematic review of the evidence and implications for clinical practice. *Journal of Affective Disorders Reports*, 5, 100148.

No remaining reviews or primary studies were included in the GRADE tables. Reason for exclusion were that previous reviews did not fully satisfy the PICO (Ferguson et al., 2021; Nuij et al., 2021). These reviews (Ferguson et al., 2021; Nuij et al., 2021) included individual studies that did not compare to TAU (or other), did not analyse the efficacy of SPI as a standalone intervention or included other similar interventions into analyses, and/or had overly narrow samples such as active army personnel or college students (as opposed to general population of adults or young people experiencing suicidal thoughts and/or behaviours). Additional reasons were that included studies had inappropriate design (e.g., qualitative). Each individual study included in the identified reviews were compiled into a table (see Appendix II) to identify if individual studies included in previous reviews met PICO criteria for the current scoping question and could contribute to the GRADE tables. No studies included in previous reviews were deemed eligible for GRADING per the current PICO, this included the randomized controlled trials (RCTs) which used narrow samples (Bryan et al., 2017; Vijayakumar et al., 2017), did not include suicide, self-harm or ideation related outcomes (Stanley et al., 2020), evaluated SPI plus additional intervention components (i.e. not standalone; Gysin-Maillart et al., 2016; Vijayakumar et al., 2017), or examined related interventions that missed crucial components such as means restriction (Bryan et al., 2017; Chen et al., 2013; Wang et al., 2016). Nevertheless, these reviews are described as additional evidence as they provide important information.

Of the primary studies identified in the updated searches (Step 2), reasons for exclusion are provided in Figure 2 and included that SPI was not delivered as a standalone intervention (or effectiveness of the SPI component could not be distinguished), not peer reviewed, outcomes were not related to suicidal thoughts or behaviours etc.

3.1.2. Excluded from GRADE tables/footnotes

Two additional recent systematic reviews on the topic were identified. These included:

Ferguson, M., Rhodes, K., Loughhead, M., McIntyre, H., & Procter, N. (2021). The effectiveness of the safety planning intervention for adults experiencing suicide-related distress: A systematic review. *Archives of Suicide Research*, 1-24.

Nuij, C., van Ballegooijen, W., De Beurs, D., Juniar, D., Erlangsen, A., Portzky, G., ... & Riper, H. (2021). Safety planning-type interventions for suicide prevention: meta-analysis. *The British Journal of Psychiatry*, 219(2), 419-426.

Table 1: PICO Table

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
1	Acute suicide prevention interventions (including SPI) / Various	Suicidal thoughts	(Stallman & Allen, 2021)	This review did satisfy the PICO of the current mhGAP review (plus additional interventions analysed separately). However, Stallman and Allen (2021) found no studies met inclusion criteria. Instead, the authors provide a description of studies to justify reasons for exclusion.
		Suicidal behaviour		
		-		

3.2. Narrative description of studies that contributed to GRADE analysis

Stallman & Allen (2021) conducted a systematic review to examine the effectiveness of acute suicide prevention interventions (including SPI). This study used OvidSP to search five different databases: Embase, Emcare, MEDLINE, Ovid Nursing, and PsycInfo. The authors applied the following inclusion criteria:

P: individuals with suicidal thoughts or actions at baseline

I: SPI (Stanley & Brown, 2012) plus additional acute suicide prevention interventions described separately

C: other treatment (comparator varied only by acute intervention under examination)

O: suicidal thoughts or actions

Any study that was not peer reviewed was excluded and the search timeframe was inception until 1 December 2020. A total of seven studies were assessed for full text screening. From this, no studies were eligible for inclusion in their systematic review as two were excluded due to being protocols, and the remaining five did not meet the criteria.

The authors examined the methodology from the five excluded studies, the intervention type, randomization, participants, measures used, and the follow-up periods. The authors highlighted that there were varied methodological weaknesses across the studies that encompassed factors such as including participants that did not report suicidality, no acute outcome measurement, multiple interventions analysed, or there were intervention differences between the conditions on top of the acute suicide prevention intervention. Based upon a lack of eligible studies, the authors concluded there was a lack of well-designed, high quality randomized control trials of acute suicide prevention interventions (including SPI) and there is urgent research needed to identify the effectiveness of acute suicide prevention interventions.

Overall, there is a strong need for future high-quality research.

3.3. Grading the Evidence

Table 2: GRADE Table

Author(s): Mathieu, S., Treloar, Al., Kölves, K.

Date: 16th May 2022

Question: Is SPI better than TAU for persons with thoughts or plans of self-harm in the last month or acts of self-harm in the last year?

Setting: Acute care settings

Reference List: Stallman, H. M., & Allen, A. (2021). Acute suicide prevention: A systematic review of the evidence and implications for clinical practice. *Journal of Affective Disorders Reports*, 5, 100148.

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Suicide mortality												
0	-	-	-	-	-	-	-	-	-	-	-	
Acts of self-harm												
0	-	-	-	-	-	-	-	-	-	-	-	-
Thoughts of self-harm in last month												
0	-	-	-	-	-	-	-	-	-	-	-	-
Plans of self-harm in last month												
0	-	-	-	-	-	-	-	-	-	-	-	-

3.4 Additional evidence not mentioned in GRADE tables

Nuij et al. (2021) conducted a meta-analysis to examine the effectiveness of safety planning *type* interventions (SPTI) in reducing suicidal ideation and behaviour. The study utilized five different databases, including MEDLINE, Embase, PsycInfo, Web of Science, and Scopus. The authors applied the following inclusion criteria:

P: Recent suicide attempt or current suicidal ideation (no restrictions on age, disorder etc.)

I: Based on SPI for suicide prevention, at a minimum included sources of support and coping strategies, and the SPTI was deemed as main component of intervention by the review authors

C: TAU or another treatment

O: suicidal behaviour, suicide attempts, suicide, and/or suicidal ideation

Any study that was not written in English or not peer reviewed were excluded and the search timeframe was inception until 9 December 2019. A total of 34 papers were assessed for full text screening. A total of six studies were included for the meta-analysis with variable research designs, including one non-randomized trial, four RCTs, one study using sequential clinical trial design (see Appendix II).

For the primary outcome, relative risk of suicidal behaviour (defined in the review as suicide attempt and/or suicide fatalities combined), the SPTI significantly reduced suicidal behaviours compared to TAU (Relative Risk = 0.57, 95% CI = .0408-0.795, $P = .001$). However, for the secondary outcome, suicidal ideation, the result was non-significant (hedges $g = 0.69$, 95% CI = -0.04-1.42, $P = .06$). Some limitations within this meta-analysis were highlighted by the authors, i) there were a limited number of controlled studies eligible for inclusion, ii) variation in study design (i.e. not all randomized) makes comparisons problematic, iii) the low methodological quality of studies included, iv) the use of one bias risk assessment tool for randomized studies was used for all included studies (including non-randomized), v) heterogeneity identified could not be explained by variations in quality, study settings, and the populations used.

It is important to note that psychiatric experts in the field of suicide prevention have provided commentary on this meta-analysis, outlining important issues with the non-standardized assessment/definition of suicidal behaviour across included studies and that conclusions based on the meta-analysis may have been too generous (House, 2022a).

As mentioned previously, the four included RCTs were not included in the GRADE tables, as the intervention did not strictly adhere to all components of the safety planning intervention and/or included additional therapeutic components that made it difficult to determine, and therefore make recommendations as to, the effectiveness of the safety plan component (see Table 3, see Appendix II).

Table 3. Summary of randomized control trials in Nuij et al. (2021)

Study	Population	Intervention	Comparator	Outcomes	Main findings	Alignment with Safety Planning Intervention (Stanley & Brown, 2012) as a standalone intervention
Bryan et al. 2017	Active Army Personnel (USA) with active suicidal ideation and/or lifetime history of suicide attempt	Crisis response planning (CRP; suicide risk assessment, supportive listening, collaboratively identify warning signs, self-management skills, social supports, formal crisis resources, provides and facilitates referrals) & crisis response planning enhanced (e-CRP; As above plus additionally identify reasons for living)	Contract for safety (suicide risk assessment, supportive listening, crisis resources, contract for safety)	Suicide attempt occurrence (assessed by structured clinical interview) Suicidal ideation (assessed using interviewer administered scale)	Those receiving either crisis response plan (combined) was significantly less likely to attempt suicide during follow up period (76% less) however this became non-significant when controlling for baseline suicidal ideation severity which varied across study phases and was thus controlled for. When comparing individual crisis response plans there were no significant differences between e-CRP and contract for safety, e-CRP and CRP, or CRP and contract for safety. Those in either intervention group reported significantly faster reduction in suicidal ideation (with no difference between CRP	CRP does not contain means restriction, the key component of SPI.

Study	Population	Intervention	Comparator	Outcomes	Main findings	Alignment with Safety Planning Intervention (Stanley & Brown, 2012) as a standalone intervention
					and e-CRP intervention groups)	
Chen et al. 2013	Adults with a suicide attempt in previous month identified in community	3-months case management & crisis postcard (crisis postcard is developed and mailed out by the case manager at the end of the case management period and tailored to the individual – postcard contains individual coping strategies and formal crisis resources)	3-months case management (psychological support, providing coping strategies, follow-ups to increase and facilitate referrals, coordinate social resources and crisis intervention)	Time to suicide attempt re-occurrence in 6-months following treatment (assessed by national suicide reporting system)	Based upon intent-to-treat analyses there were no significant differences in time to suicide re-attempt between intervention and control	Intervention does not contain means restriction, the key component of SPI. Crisis postcard is developed by the case manager/ clinician and distributed via mail following three months of case management (although tailored to their client) versus collaboratively developed and re-visited together.
Gysin-Maillart et al. 2016	Adults with recent suicide attempt presenting to emergency department	Co-active TAU plus attempted suicide short intervention program (ASSIP; Three 60–90-minute sessions including patient-centred risk assessment and automatic thoughts identified, psychoeducation and homework, collaborative cognitive case conceptualization and safety strategies including long	A risk assessment interview (with outcomes provided to usual clinical care team) plus co-active TAU (in both groups TAU included inpatient, outpatient, and day patient care as necessary, and pharmacotherapy).	Self-reported experience of suicide attempts, suicidal ideation, and self-harm (assessed using a self-developed survey) Suicidal ideation (assessed using a self-report survey)	One suicide occurred in both groups. Those in the ASSIP condition were 83% less likely to have a suicide re-attempt during the 24 month follow up (Hazard Ratio 0.17, 95%CI 0.07-0.46)	Includes SPI however has additional components such as personalized follow up contacts over two years, psychoeducation and associated homework, cognitive case conceptualization etc. Therefore, it is difficult to ascertain the effectiveness of the

Study	Population	Intervention	Comparator	Outcomes	Main findings	Alignment with Safety Planning Intervention (Stanley & Brown, 2012) as a standalone intervention
		term goals, personal warning signs, safety strategies copied to a wallet sized card including crisis numbers, plus personalized letter follow up for 24 months)	The authors note that the risk assessment session likely included narrative components of ASSIP (i.e. similar to session 1 of ASSIP)		Suicidal ideation significantly reduced over the follow up period but did not differ by groups.	safety planning component. The comparison group of TAU was supplemented with an additional component similar to session one of the intervention.
Wang et al. 2016	Adults with a suicide attempt in previous month identified in community	3-months case management & coping card (individuals received six weeks training in emotion regulation skills to facilitate understanding of the use and purpose of the coping card during case management home visits – components included awareness of suicidal ideation, coping strategies and emotion regulation, resources, formal crisis resources)	3-months case management (risk assessment, psychological support, referrals, and facilitation)	Time to suicide attempt re-occurrence over the three-month intervention period (assessed by suicide reporting system) Suicide risk (assessed by self-report of suicidal ideation, motivation and plans, and previous suicide attempt experiences) Suicidal ideation (assessed by self-reported ideation)	Those in the intervention group had significantly longer time to suicide re-attempt across the 3-months Those in the intervention reported significantly lower suicide risk and suicidal ideation at post)	Intervention does not contain means restriction, the key component of SPI. Provides additional training over 6-weeks on emotion regulation skills related to coping card usage.

ASSIP: suicide short intervention program;

CRP: crisis response planning; e-CRP: enhanced crisis response planning;

TAU: treatment as usual;

SPI: safety patient intervention

Ferguson et al. (2021) conducted a systematic review to investigate the effectiveness of SPIs for adults, including veterans, who experience suicide related distress. This study utilized six different databases: Cochrane Trials, Embase, Emcare, MEDLINE, PsycInfo, and Web of Science. The authors applied the following criteria:

P: Adults at risk of/or experiencing suicide-related distress (any care setting)

I: SPI (Stanley & Brown, 2012) and not related interventions such as crisis planning (did not specify SPI as a standalone)

C: not specified (included some studies without comparators)

O: suicide, suicide attempts, suicidal ideation/thoughts, suicidal distress (as well as additional outcomes such as feasibility or acceptability)

Any study that was not peer reviewed, not primary research, or not published in English was excluded and the search timeframe was from 2000 to 15 May 2020. A total of 45 studies were assessed for full text screening. From this, 26 studies were included in the systematic review with variable study designs: three randomized control trials, 15 quasi-experimental studies, two cross-sectional studies, and six qualitative studies (see Appendix II). The authors of the systematic review did not proceed with meta-analysis based upon the variation in studies (Ferguson et al., 2021). Most of the included studies were general adult (n = 10) or Veterans/Army Personnel from USA (n=9), receiving hospital/medical care for their suicidality. Only three studies were overlapping with the previously described meta-analysis (Nuij et al., 2021).

Overall, the authors use narrative synthesis and determined that quantitative studies indicated SPIs were associated with reduction in suicidal ideation and behaviour, as well as a reduction in hopelessness and depression. Furthermore, SPI was associated with increased treatment attendance and a decrease in hospitalizations. However, the authors note that less is known regarding the effectiveness of SPIs in reducing suicide deaths. From the qualitative studies, the authors found that the SPI appears acceptable and feasible to users (primarily drawn from a narrow population – Veterans from USA). One of the main limitations noted by the review authors was that half the studies they examined incorporated SPI with other intervention approaches and of those (n = 12) that did examine SPI as a standalone intervention these studies did not have a comparison group or did not examine suicidal thoughts or behaviours as an outcome, thus it is difficult to ascertain the effectiveness of the SPI in isolation as per the current mhGAP scoping question. The heterogeneity of the study designs, as well as outcome measures, participants, and intervention types make conclusions regarding the current scoping question difficult. Nevertheless, as noted by the review authors, the high heterogeneity in some way points to the adaptability of SPI across samples, settings, and modes (online vs paper), and its flexibility in integration with other interventions or follow-ups (Ferguson et al., 2021).

As mentioned previously, the two unique included RCTs were not included in the GRADE tables, as one did not include suicide, self-harm, or suicidal thoughts/plans as outcomes (Stanley et al., 2020) and one did not examine SPI as a standalone intervention or component and was conducted in narrow refugee sample (Vijayakumar et al., 2017).

An overview of the AMSTAR-2 ratings for each review is provided in Appendix III.

4. From Evidence to Recommendations

4.1. Summary of findings

Overall, three systematic reviews on the topic were identified. Only one of these reviews were included in the GRADE table as it satisfied the PICO (Stallman & Allen, 2021), however, this review contained no studies and thus did not provide any evidence in answering the current scoping question. The remaining two were described as additional evidence. These reviews had wider PICO criteria than the current scoping question. Furthermore, the included studies often incorporated SPI as a component of a more complex/multicomponent intervention or supplemented with additional follow-ups or supports, and/or included interventions that are arguably similar to the SPI but did not include all six components as specified in the original description (Stanley & Brown, 2012). Nevertheless, it appears that SPI is feasible and acceptable to clinicians and end users (Ferguson et al., 2021) and that SPTI may be effective in reducing suicide attempts but not suicidal ideation (Nuij et al., 2021). However, there is a need for further research, and while the SPI has been described (Stanley & Brown, 2012) and may be implemented as a standalone intervention in practice it appears that the majority of effectiveness studies are unable to provide indication as to the effectiveness of SPI as a standalone component in reducing suicide mortality, acts of self-harm or thoughts/plans of self-harm.

Table 4: Summary of findings table from GRADE tables

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
GRADE Table 1	Stallman, H. M., & Allen, A. (2021). Acute suicide prevention: A systematic review of the evidence and implications for clinical practice. <i>Journal of Affective Disorders Reports</i> , 5, 100148.	Suicide mortality	0	-	-
		Acts of self-harm	0	-	-
		Thoughts of self-harm in last month	0	-	-
		Plans of self-harm in last month	0	-	-

GRADE: grading of recommendations, assessment, development, and evaluations

Table 5: Evidence to decision table

Please note * indicates evidence from overarching qualitative review by Gronholm et al, 2023.

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Priority of the problem	<p>Is the problem a priority? The more serious a problem is, the more likely it is that an option that addresses the problem should be a priority (e.g., diseases that are fatal or disabling are likely to be a higher priority than diseases that only cause minor distress). The more people who are affected, the more likely it is that an option that addresses the problem should be a priority.</p>			
	<ul style="list-style-type: none"> • Are the consequences of the problem serious (that is, severe or important in terms of the potential benefits or savings)? • Is the problem urgent? • Is it a recognized priority (such as based on a political or policy decision)? [Not relevant when an individual patient perspective is taken] 	<input type="checkbox"/> No <input type="checkbox"/> Probably no <input type="checkbox"/> Probably yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/> Don't know	<p>Suicide and self-harm are serious public health problems globally (WHO, 2021).</p> <p>The reduction of the suicide rate is an indicator in the UN SDGs; the only one included on mental health.</p> <p>More than 700 000 people die by suicide every year. Suicide accounts for 1.3% of all deaths globally.</p> <p>77% of suicides occur in LMICs. Suicide is the fourth leading cause of death for 15–29-year-olds (third for girls, fourth for boys). 58% of suicides happen before the age of 50 years.</p> <p>It is estimated that for every suicide there are 20 suicide attempts. Not only are suicide attempts a precursor to suicides, but a serious public health concern in themselves because they can often lead to substantial physical injury and reduced quality of life.</p>	<p>Suicide prevention is an important global target in the World Health Organization's Mental Health Action Plan 2013-2030 (WHO, 2021).</p>

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Desirable Effects	How substantial are the desirable anticipated effects? The larger the benefit, the more likely it is that an option should be recommended.			
	<ul style="list-style-type: none"> • Judgments for each outcome for which there is a desirable effect • How substantial (large) are the desirable anticipated effects (including health and other benefits) of the option (taking into account the severity or importance of the desirable consequences and the number of people affected)? 	<input type="checkbox"/> Trivial <input type="checkbox"/> Small <input type="checkbox"/> Moderate <input type="checkbox"/> Large <input checked="" type="checkbox"/> Varies <input type="checkbox"/> Don't know	No identified studies or reviews satisfactorily addressed the PICO for the review question "Is safety planning better than TAU for persons with thoughts or plans of self-harm in the last month or acts of self-harm in the last year?"	A meta-analysis identified in the current review investigates SPTI (including additional similar interventions such as coping cards plus case management) and found that these types of interventions did reduce suicidal behaviours but not suicidal thoughts (Nuij et al., 2021). These type of interventions did not fit our criteria for the mhGAP review (i.e., strictly SPI as described by Stanley & Brown [2012] and administered as a standalone intervention)
Undesirable Effects	How substantial are the undesirable anticipated effects? The greater the harm, the less likely it is that an option should be recommended.			
	<ul style="list-style-type: none"> • Judgments for each outcome for which there is an undesirable effect • How substantial (large) are the undesirable anticipated effects (including harms to health and other harms) of the option (taking into account the severity or importance of the adverse effects and the number of people affected)? 	<input type="checkbox"/> Large <input type="checkbox"/> Moderate <input type="checkbox"/> Small <input type="checkbox"/> Trivial <input type="checkbox"/> Varies <input checked="" type="checkbox"/> Don't know	The included reviews did not directly address adverse events. Expert commentary in the literature does provide discourse around the potential harm of poorly administered or non-collaborative safety plans (House, 2022b).	

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Certainty of evidence	<p>What is the overall certainty of the evidence of effects?</p> <p>The less certain the evidence is for critical outcomes (those that are driving a recommendation), the less likely that an option should be recommended (or the more important it is likely to be to conduct a pilot study or impact evaluation, if it is recommended).</p>			
	<ul style="list-style-type: none"> What is the overall certainty of this evidence of effects, across all of the outcomes that are critical to making a decision? See GRADE guidance regarding detailed judgments about the quality of evidence or certainty in estimates of effects 	<input type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input checked="" type="checkbox"/> No included studies	<p>Preliminary evidence to SPIs may reduce suicidal behaviours but not suicidal thoughts, however, difficult to distinguish impact of SPI as a standalone intervention as was the purpose of the current review (Ferguson et al., 2021; Nuij et al., 2021), hence no included studies.</p>	
Values	<p>Is there important uncertainty about or variability in how much people value the main outcomes?</p> <p>The more likely it is that differences in values would lead to different decisions, the less likely it is that there will be a consensus that an option is a priority (or the more important it is likely to be to obtain evidence of the values of those affected by the option). Values in this context refer to the relative importance of the outcomes of interest (how much people value each of those outcomes). These values are sometimes called 'utility values'.</p>			
	<ul style="list-style-type: none"> Is there important uncertainty about how much people value each of the main outcomes? Is there important variability in how much people value each of the main outcomes? 	<input type="checkbox"/> Important uncertainty or variability <input type="checkbox"/> Possibly important uncertainty or variability <input checked="" type="checkbox"/> Probably no important uncertainty or variability <input type="checkbox"/> No important uncertainty or variability	<p>There was no direct evidence to evaluate values and preferences of people.</p> <p>*Overall, the studies highlighted importance of mental health interventions and the outcomes of those interventions on people's mental health and well-being. The utility value could be limited by certain factors and barriers present in the health systems. For instance, low awareness, poor funding and poor political buy-in, or other social barriers.</p> <p>Social networks or raising awareness can facilitate adoption and recognition of mental health issues and the perceived value of the interventions.</p>	<p>Suicide prevention is an important priority however across countries and populations there is considerable stigma, variation in criminalization of the behaviour, and religious beliefs that may impact the value people place upon suicide prevention.</p>

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Balance of effects	<p>Does the balance between desirable and undesirable effects favour the intervention or the comparison? The larger the desirable effects in relation to the undesirable effects, taking into account the values of those affected (i.e. the relative value they attach to the desirable and undesirable outcomes) the more likely it is that an option should be recommended.</p>			
	<ul style="list-style-type: none"> • Judgments regarding each of the four preceding criteria • To what extent do the following considerations influence the balance between the desirable and undesirable effects: <ul style="list-style-type: none"> - How much less people value outcomes that are in the future compared to outcomes that occur now (their discount rates)? - People's attitudes towards undesirable effects (how risk averse they are)? - People's attitudes towards desirable effects (how risk seeking they are)? 	<input type="checkbox"/> Favours the comparison <input type="checkbox"/> Probably favours the comparison <input type="checkbox"/> Does not favour either the intervention or the comparison <input type="checkbox"/> Probably favours the intervention <input type="checkbox"/> Favours the intervention <input type="checkbox"/> Varies <input checked="" type="checkbox"/> Don't know	There was no direct evidence to evaluate balance of effects.	
Resources required	<p>How large are the resource requirements (costs)? The greater the cost, the less likely it is that an option should be a priority. Conversely, the greater the savings, the more likely it is that an option should be a priority.</p>			
	<ul style="list-style-type: none"> • How large is the difference in each item of resource use for which <u>fewer</u> resources are required? • How large is the difference in each item of resource use for which <u>more</u> resources are required? • How large an investment of resources would the option require or save? 	<input type="checkbox"/> Large costs <input type="checkbox"/> Moderate costs <input type="checkbox"/> Negligible costs and savings <input type="checkbox"/> Moderate savings <input type="checkbox"/> Large savings <input checked="" type="checkbox"/> Varies <input type="checkbox"/> Don't know	There was no direct evidence to evaluate resource requirements.	No cost-effectiveness studies were identified, however, the brevity of SPI when administered as a standalone intervention is likely to be less resource intensive.

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Certainty of evidence of required resources	What is the certainty of the evidence of resource requirements (costs)?			
	<ul style="list-style-type: none"> • Have all-important items of resource use that may differ between the options being considered been identified? • How certain is the evidence of differences in resource use between the options being considered (see GRADE guidance regarding detailed judgments about the quality of evidence or certainty in estimates)? • How certain is the cost of the items of resource use that differ between the options being considered? • Is there important variability in the cost of the items of resource use that differ between the options being considered? 	<input type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input checked="" type="checkbox"/> No included studies	No reviews examining cost-effectiveness identified.	No cost-effectiveness studies were identified in the review, and resource use was not a main outcome.
Cost effectiveness	Does the cost-effectiveness of the intervention favour the intervention or the comparison? The greater the cost per unit of benefit, the less likely it is that an option should be a priority.			
	<ul style="list-style-type: none"> • Judgments regarding each of the six preceding criteria • Is the cost effectiveness ratio sensitive to one-way sensitivity analyses? • Is the cost effectiveness ratio sensitive to multivariable sensitivity analysis? • Is the economic evaluation on which the cost effectiveness estimate is based reliable? • Is the economic evaluation on which the cost effectiveness estimate is based applicable to the setting(s) of interest? 	<input type="checkbox"/> Favours the comparison <input type="checkbox"/> Probably favours the comparison <input type="checkbox"/> Does not favour either the intervention or the comparison <input type="checkbox"/> Probably favours the intervention <input type="checkbox"/> Favours the intervention <input type="checkbox"/> Varies <input checked="" type="checkbox"/> No included studies	No reviews examining cost-effectiveness identified.	No cost-effectiveness studies were identified in the review, and resource use was not a main outcome.

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Health equity, equality and non-discrimination	What would be the impact on health equity, equality and non-discrimination? Health equity and equality reflect a concerted and sustained effort to improve health for individuals across all populations, and to reduce avoidable systematic differences in how health and its determinants are distributed. Equality is linked to the legal principle of non-discrimination, which is designed to ensure that individuals or population groups do not experience discrimination on the basis of their sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other characteristics. All recommendations should be in accordance with universal human rights standards and principles. The greater the likelihood that the intervention increases health equity and/or equality and that it reduces discrimination against any particular group, the greater the likelihood of a general recommendation in favour of this intervention.			
	<ul style="list-style-type: none">• How are the condition and its determinants distributed across different population groups? Is the intervention likely to reduce or increase existing health inequalities and/or health inequities? Does the intervention prioritize and/or aid those furthest behind?• How are the benefits and harms of the intervention distributed across the population? Who carries the burden (e.g., all), who benefits (e.g., a very small sub-group)?• How affordable is the intervention for individuals, workplaces, or communities?• How accessible - in terms of physical as well as informational access - is the intervention across different population groups?• Is there any suitable alternative to addressing the condition, does the intervention represent the only available option? Is this option proportionate to the need, and will it be subject to periodic review?	<ul style="list-style-type: none"><input type="checkbox"/> Reduced<input type="checkbox"/> Probably reduced<input type="checkbox"/> Probably no impact<input checked="" type="checkbox"/> Probably increased<input type="checkbox"/> Increased<input type="checkbox"/> Varies<input type="checkbox"/> Don't know	<p>There was no direct evidence to evaluate health equity, equality, and non-discrimination.</p> <p>*The review noted considerations for ensuring MNS interventions are equitable, equally available, and non-discriminatory:</p> <ul style="list-style-type: none">• Accessibility, physical/practical considerations• Time & travel constraints• Accessibility, informational barriers• Affordability - medication and treatment costs <p>These factors may be exacerbated for certain groups:</p> <ul style="list-style-type: none">• People with low education/literacy - e.g. written instructions, psychoeducation materials• Women - travel restrictions, stronger stigma/shame, caregiving responsibilities	

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
			<ul style="list-style-type: none"> Low resource settings - affordability/cost considerations exacerbated 	
Feasibility	Is the intervention feasible to implement? The less feasible (capable of being accomplished or brought about) an option is, the less likely it is that it should be recommended (i.e. the more barriers there are that would be difficult to overcome).			
	<ul style="list-style-type: none"> Can the option be accomplished or brought about? Is the intervention or option sustainable? Are there important barriers that are likely to limit the feasibility of implementing the intervention (option) or require consideration when implementing it? 	<input type="checkbox"/> No <input type="checkbox"/> Probably no <input checked="" type="checkbox"/> Probably yes <input type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/> Don't know	There was preliminary evidence to suggest that clinicians and individuals experiencing suicidality find SPI as a standalone intervention acceptable and feasible however more research required (Ferguson et al., 2021). *Included reviews considered feasibility, and how this can be enhanced: <ul style="list-style-type: none"> Acceptability of interventions for stakeholders - requires increased engagement with specialist staff, increased visibility of the task-sharing workforce within health facilities, perception of usefulness by providers and service users (e.g. via positive feedback), context-specific interventions, standardized implementation steps for simpler decision-making and delivery Health worker workload, competency- requires training, refreshers, supervision, networking with others in same role 	

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
			<ul style="list-style-type: none"> • Availability of a task-sharing workforce • Availability of caregivers • Participant education and literacy requires verbal explanations/tasks • Logistical issues such as e.g., mobile populations, affordability of travel to receive care, lack of private space • Limited resources/mental health budget <p>Sustainability considerations:</p> <ul style="list-style-type: none"> • Training and supervision • Integrating into routine clinical practice • Provider type (e.g. formally employed lay health workers vs volunteers) 	
Human rights and sociocultural acceptability	<p>Is the intervention aligned with human rights principles and socioculturally acceptable?</p> <p>This criterion encompasses two distinct constructs: The first refers to an intervention's compliance with universal human rights standards and other considerations laid out in international human rights law beyond the right to health (as the right to health provides the basis of other criteria and sub-criteria in this framework). The second, sociocultural acceptability, is highly time-specific and context-specific and reflects the extent to which those implementing or benefiting from an intervention as well as other relevant stakeholder groups consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention. The greater the sociocultural acceptability of an intervention to all or most relevant stakeholders, the greater the likelihood of a general recommendation in favour of this intervention.</p>			
	<ul style="list-style-type: none"> • Is the intervention in accordance with universal human rights standards and principles? • Is the intervention socioculturally acceptable to patients/beneficiaries as well as to those implementing it? To which extent do patients/beneficiaries value different non-health outcomes? 	<input type="checkbox"/> No <input type="checkbox"/> Probably no <input checked="" type="checkbox"/> Probably yes <input type="checkbox"/> Yes <input type="checkbox"/> Varies	<p>There was no direct evidence to evaluate alignment with human rights principle and sociocultural acceptability.</p> <p>*The review noted a number of considerations which would impact the</p>	

CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<div></div> <ul style="list-style-type: none"> • Is the intervention socioculturally acceptable to the public and other relevant stakeholder groups? Is the intervention sensitive to sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other relevant characteristics? • How does the intervention affect an individual's, population groups or organization's autonomy, i.e. their ability to make a competent, informed and voluntary decision? • How intrusive is the intervention, ranging from low intrusiveness (e.g. providing information) to intermediate intrusiveness (e.g. guiding choices) to high intrusiveness (e.g. restricting or eliminating choices)? Where applicable, are high intrusiveness and/or impacts on the privacy and dignity of concerned stakeholders justified? 	<input type="checkbox"/> Don't know	<p>right to health and access to health care. E.g. stigma and discrimination and lack of confidentiality could affect the help-seeking among service users.</p> <p>The importance of sociocultural acceptability of MNS interventions was clearly expressed. Pre-intervention considerations that take into account cultural and social aspects improve the acceptability of implemented interventions.</p> <p>When interventions were perceived as appropriate for the culture and target group, the content and medium of the intervention received more positive feedback from service users and caregivers. Also, considerations of age, sex and language have been highlighted as important to acceptability and accessibility. Mitigating steps to improve sociocultural acceptability include:</p> <ul style="list-style-type: none"> • To train health workers in non-judgemental care • Integrate preventative mental health awareness messages to reduce the stigma • Train acceptable counsellors for the local settings and target groups • Facilitate the use of indigenous/ local phrases and terms to 	

CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<div data-bbox="210 272 304 363"></div>		increase acceptability, accessibility, and fidelity	

LMICs: low- and middle-income countries; MNS: mental, neurological and substance use; PICO: population, intervention, comparator, outcome(s); SPI: safety planning intervention; SPTI: safety planning type intervention; TAU: treatment as usual; UN SDGs: united nations sustainable development goals

4.2. Summary of judgements

Table 6: Summary of judgements

This provides a snapshot of the evidence to decision table.

Priority of the problem	- Don't know	- Varies		- No	- Probably No	- Probably Yes	✓ Yes
Desirable effects	- Don't know	✓ Varies		- Trivial	- Small	- Moderate	- Large
Undesirable effects	✓ Don't know	- Varies		- Large	- Moderate	- Small	- Trivial
Certainty of the evidence	✓ No included studies			- Very low	- Low	- Moderate	- High
Values				- Important uncertainty or variability	- Possibly important uncertainty or variability	✓ Probably no important uncertainty or variability	- No important uncertainty or variability
Balance of effects	✓ Don't know	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	- Probably favours intervention	- Favours intervention
Resources required	- Don't know	✓ Varies	- Large costs	- Moderate costs	- Negligible costs or savings	- Moderate savings	- Large savings
Certainty of the evidence on required resources	✓ No included studies			- Very low	- Low	- Moderate	- High
Cost–effectiveness	✓ No included studies	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	- Probably favours intervention	- Favours intervention
Equity, equality and non-discrimination	- Don't know	- Varies	- Reduced	Probably reduced	- Probably no impact	✓ Probably increased	- Increased
Feasibility	- Don't know	- Varies		- No	- Probably No	✓ Probably Yes	- Yes
Human rights and sociocultural acceptability	- Don't know	- Varies		- No	- Probably No	✓ Probably Yes	- Yes

✓ Indicates category selected, - Indicates category not selected

5. References

- Bryan, C. J., Mintz, J., Clemans, T. A., Leeson, B., Burch, T. S., Williams, S. R., ... & Rudd, M. D. (2017). Effect of crisis response planning vs. contracts for safety on suicide risk in US Army soldiers: a randomized clinical trial. *Journal of Affective Disorders*, 212, 64-72.
- Chen, W. J., Ho, C. K., Shyu, S. S., Chen, C. C., Lin, G. G., Chou, L. S., ... & Chou, F. H. C. (2013). Employing crisis postcards with case management in Kaohsiung, Taiwan: 6-month outcomes of a randomised controlled trial for suicide attempters. *BMC Psychiatry*, 13(1), 1-7.
- De Leo, D., Goodfellow, B., Silverman, M., Berman, A., Mann, J., Arensman, E., ... & Kolves, K. (2021). International study of definitions of English-language terms for suicidal behaviours: a survey exploring preferred terminology. *BMJ Open*, 11(2), e043409.
- Ferguson, M., Rhodes, K., Loughhead, M., McIntyre, H., & Procter, N. (2021). The effectiveness of the safety planning intervention for adults experiencing suicide-related distress: A systematic review. *Archives of Suicide Research*, 1-24.
- Gronholm, P., Makhmud, A., Barbui, C., Brohan, E. & Chowdhary, N. (2023). Qualitative evidence regarding the experience of receiving and providing care for mental health conditions in non-specialist settings in low-and middle-income countries: A systematic review of reviews. *BMJ Mental Health*, 26:e300755.
- Gysin-Maillart, A., Schwab, S., Soravia, L., Megert, M., & Michel, K. (2016). A novel brief therapy for patients who attempt suicide: A 24-months follow-up randomized controlled study of the attempted suicide short intervention program (ASSIP). *PLoS Medicine*, 13(3), e1001968.
- House, A. (2022a). Safety planning-type interventions for suicide prevention: meta-analysis. *The British Journal of Psychiatry*, 220(4), 246-246.
- House, A. (2022b). Self-harm and suicide in adults: will safety plans keep people safe after self-harm? *BJPsych Bulletin*, 46(1), 1-3.
- Nuij, C., van Ballegooijen, W., De Beurs, D., Juniar, D., Erlangsen, A., Portzky, G., . . . Riper, H. (2021). Safety planning-type interventions for suicide prevention: meta-analysis. *The British Journal of Psychiatry*, 219(2), 419-426.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., . . . Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International Journal of Surgery*, 88, 105906.
- Schünemann, H., Brožek, J., Guyatt, G., & Oxman, A. (2013). GRADE handbook for grading quality of evidence and strength of recommendations. Updated October 2013. The GRADE Working Group, 2013.
- Shea, B. J., Reeves, B. C., Wells, G., Thuku, M., Hamel, C., Moran, J., . . . Kristjansson, E. (2017). AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*, 358.
- Stallman, H. M., & Allen, A. (2021). Acute suicide prevention: A systematic review of the evidence and implications for clinical practice. *Journal of Affective Disorders Reports*, 5, 100148.

Stanley, B., & Brown, G. K. (2012). Safety planning intervention: a brief intervention to mitigate suicide risk. *Cognitive and Behavioral Practice*, 19(2), 256-264.

Stanley, I. H., Hom, M. A., Sachs-Ericsson, N. J., Gallyer, A. J., & Joiner, T. E. (2020). A pilot randomized clinical trial of a lethal means safety intervention for young adults with firearm familiarity at risk for suicide. *Journal of Consulting and Clinical Psychology*, 88(4), 372.

Stanley, B., Brown, G., Brent, D. A., Wells, K., Poling, K., Curry, J., ... & Hughes, J. (2009). Cognitive-behavioral therapy for suicide prevention (CBT-SP): treatment model, feasibility, and acceptability. *Journal of the American Academy of Child & Adolescent Psychiatry*, 48(10), 1005-1013.

Vijayakumar, L., Mohanraj, R., Kumar, S., Jeyaseelan, V., Sriram, S., & Shanmugam, M. (2017). CASP—An intervention by community volunteers to reduce suicidal behaviour among refugees. *International Journal of Social Psychiatry*, 63(7), 589-597.

Wang, Y. C., Hsieh, L. Y., Wang, M. Y., Chou, C. H., Huang, M. W., & Ko, H. C. (2016). Coping card usage can further reduce suicide reattempt in suicide attempter case management within 3 - month intervention. *Suicide and Life - Threatening Behavior*, 46(1), 106-120.

World Health Organization. (2014). Preventing suicide: A global imperative. Geneva: World Health Organization

World Health Organization. (2014). WHO handbook for guideline development 2nd Edition. Geneva: World Health Organization.

World Health Organization. (2021). Comprehensive mental health action plan 2013–2030. Geneva: World Health Organization.

6. Glossary

Safety Planning Intervention: A brief intervention for managing acute suicidal thoughts or behaviours comprised of six key steps (including, recognizing warning signs, coping strategies, social supports, family supports, contacting appropriate services, restricting access to means) as described in the literature (Stanley & Brown, 2012). A personal safety plan should be developed collaboratively with end users and can be administered as a standalone intervention (Stanley & Brown, 2012).

Suicide attempt: A non-fatal act in which a person harms themselves, with the intention to die, and survives (De Leo et al., 2021).

Self-harm: A non-fatal act in which a person harms themselves, with or without intention to die, and with varying motives including the wish to die (De Leo et al., 2021).

Suicide: An act of deliberately killing oneself (World Health Organization, 2014).

Suicidal ideation/thoughts: To think of suicide with or without suicidal intent, or hope for death by killing oneself, or state suicidal intention without engaging in the behaviour (De Leo et al., 2021).

Suicidal behaviour: Includes suicide, suicide attempts, and self-harm.

Appendix I. Search terms used to identify systematic reviews and updated studies

Searches to identify existing reviews	Searches to update reviews
<p>Scopus (Elsevier) (TITLE-ABS-KEY (selfharm OR suicid*) AND TITLE-ABS-KEY ("safety plan*") AND NOT TITLE-ABS-KEY (euthanasia OR "assisted suicide") AND TITLE (review)) AND PUBYEAR > 2009 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE , "re"))</p> <p>Cochrane Library selfharm OR suicid* in Title Abstract Keyword AND "safety plan*" in Title Abstract Keyword NOT euthanasia OR "assisted suicide" in Title Abstract Keyword - with Cochrane Library publication date Between Jan 2010 and Jan 2022, in Cochrane Reviews, Cochrane Protocols (Word variations have been searched)</p> <p>PsycInfo (Ovid) " (((selfharm or suicid*) and ""safety plan*"").ab. and (review or meta-analysis).ti.) not (euthanasia or ""assisted suicide"").ab. " limit to yr="2010 - 2022"</p> <p>Embase (Elsevier) (selfharm:ti,ab,kw OR suicid*:ti,ab,kw) AND 'safety plan*:ti,ab,kw AND (review:ti OR 'meta analysis':ti) NOT (euthanasia:ti,ab,kw OR 'assisted suicide':ti,ab,kw) AND [2010-2022]/py</p> <p>MEDLINE (EBSCOHost) (selfharm OR suicid*) AND AB "safety plan*" AND TI (review OR meta-analysis) NOT AB (euthanasia OR "assisted suicide") Limiters - Date of Publication: 20100101-20220231</p> <p>CINAHL (EBSCOHost) AB (selfharm OR suicid*) AND AB "safety plan*" AND TI (review OR meta-analysis) NOT AB (euthanasia OR "assisted suicide") Limiters - Published Date: 20100101-20220231</p> <p>Epistemonikos (title:((title:(selfharm OR suicid*) OR abstract:(selfharm OR suicid*)) AND (title:("safety plan*") OR abstract:("safety plan*")) AND title:(review OR meta-analysis) NOT (title:(euthanasia OR "assisted suicide") OR abstract:(euthanasia OR "assisted suicide"))) OR abstract:((title:(selfharm OR suicid*) OR abstract:(selfharm OR suicid*)) AND (title:("safety plan*") OR abstract:("safety plan*")) AND title:(review OR meta-analysis) NOT (title:(euthanasia OR "assisted suicide") OR abstract:(euthanasia OR "assisted suicide")))) Custom year range 2010-2022</p>	<p>Scopus (Elsevier) (TITLE-ABS-KEY (selfharm OR suicid*) AND TITLE-ABS-KEY ("safety plan*") AND NOT TITLE-ABS-KEY (euthanasia OR "assisted suicide")) AND PUBYEAR > 2019 AND PUBYEAR < 2023</p> <p>Cochrane Library selfharm OR suicid* in Title Abstract Keyword AND "safety plan*" in Title Abstract Keyword NOT euthanasia OR "assisted suicide" in Title Abstract Keyword - with Cochrane Library publication date Between 2020 and 2022, in Cochrane Trials, Cochrane Protocols (Word variations have been searched)</p> <p>PsycInfo (Ovid) (((selfharm or suicid*) and "safety plan*") not (euthanasia or "assisted suicide")).ab. limit 1 to yr="2020 - 2022"</p> <p>Embase (Elsevier) (suicid*:ti,ab,kw OR selfharm:ti,ab,kw) AND 'safety plan*:ti,ab,kw NOT (euthanasia:ti,ab,kw OR 'assisted suicide':ti,ab,kw) AND [2020-2022]/py</p> <p>MEDLINE (EBSCOHost) AB (suicid* or selfharm) AND AB "safety plan*" NOT AB (euthanasia OR "assisted suicide") Limiters - Date of Publication: 20200501-20220231 Expanders - Apply equivalent subjects Search modes - Boolean/Phrase</p> <p>CINAHL (EBSCOHost) AB (suicid* or selfharm) AND AB "safety plan*" NOT AB (euthanasia OR "assisted suicide") Limiters - Date of Publication: 20200501-20220231 Expanders - Apply equivalent subjects Search modes - Boolean/Phrase</p> <p>Epistemonikos (title:((title:(suicid* OR selfharm) OR abstract:(suicid* OR selfharm)) AND (title:("safety plan*") OR abstract:("safety plan*")) NOT (title:(euthanasia OR "assisted suicide") OR abstract:(euthanasia OR "assisted suicide"))) OR abstract:((title:(suicid* OR selfharm) OR abstract:(suicid* OR selfharm)) AND (title:("safety plan*") OR abstract:("safety plan*")) NOT (title:(euthanasia OR "assisted suicide") OR abstract:(euthanasia OR "assisted suicide")))) Custom year range 2020 – 2022</p> <p>Global Index Medicus (tw:(suicid* OR selfharm)) AND (tw:("safety plan*")) AND NOT (tw:(euthanasia OR "assisted suicide"))</p>

Global Index Medicus

(tw:(suicid* OR selfharm)) AND NOT (tw:(euthanasia OR "assisted suicide")) AND (tw:("safety plan*")) AND (ti:(review))

PROSPERO Register

suicide OR selfharm AND "safety plan*"

Appendix II. Table investigating if individual studies included in previous reviews (described above) met PICO criteria for the current mhGAP review.

None of the previously included studies met our criteria – either population was too narrow, study design was inappropriate to address the question, intervention was not SPI (Stanley & Brown, 2012) or as a standalone, did not have a comparison group to treatment as usual, or did not measure self-harm (including suicide attempts) or suicidal thoughts/plans as outcomes.

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
Search Concluded December 2019	Search Concluded May 2020	Search Concluded December 2020		General population receiving treatment for suicidality Y/N (Specify)	SPI Only (Y/SPI +/- Other)	TAU		Suicide (Y/N) - impact	Self-harm/Suicide attempt (Y/N) - impact	Suicidal thoughts/plans (Y/N) - impact	Other outcomes measured (Y/N)
	Boudreux et al 2017		Before and after study	Y (Adults with suicidality)	Y	None	30	N	N	Y - sig decrease in intensity pre to post	Y
	Chesin et al 2015		Before and after study	Y (Adult suicide prevention outpatients)	SPI +	None	18	N	N	Y - sig decrease pre to post	Y
	Chesin et al 2016		Before and after study	Y (Adults with suicidality)	SPI +	None	10	N	N	N	Y
	Gamarra et al 2015		Case series	N (Veterans)	Y	NA (Case series)	180	N	Y - quality and/or completeness of safety plan did not impact	N	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
									subsequent SA		
	Goodman et al 2020*		Before and after study	N (Veterans)	SPI +	None	31	N	N	Y - sig decrease pre to post	Y
	Green et al 2018		Case series	N (Veterans - convenience sample with post-traumatic stress)	Y	NA (Case series)	68	N	Y - completing a safety plan appeared to reduce later suicidal behaviours (including suicide attempt) however small effect	N	Y
Gysin-Maillart et al 2016	Gysin-Maillart et al 2016		RCT	Y (Adults ED presentations for SA)	SPI + (ASSIP = Three 60–90-minute sessions including patient-centred risk assessment and automatic thoughts	Y (TAU = psychotherapy and supportive letters)	120 (60 in each group)	N	Y - sig lower SA reattempts/ admissions in ASSIP group (even after controlling for other variables)	Y - sig reduction over time regardless of intervention group (self-reported)	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					identified, psychoeducation on homework, collaborative case conceptualization and safety strategies (including long term goals, personal warning signs, safety strategies copied to a wallet sized card incl. crisis numbers PLUS personalized letter follow up for 24 months after discharge)						
	Labouliere et al 2020*		Before and after study	N (Clinicians)	Y	None	271	N	N	N	Y
	Matarazzo et al 2017		Quasi-experimental	N (Veterans)	SPI + (HOME = designed specifically for veterans and includes a session while	Y (archival records TAU = previous hospital practices)	68 (34 intervention, 24 control)	N	N	N	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					the veteran is still in inpatient care, telephone follow-up within one day of discharge, home visit within one week of discharge and ongoing telephone support – during all sessions a risk assessment is conducted, and a safety plan is revisited)						
	Matarazzo et al 2019*		Quasi-experimental	N (Veterans)	SPI + (As above)	Y (enhanced TAU = follow up contact in week post discharge)	302 (166 intervention, 136 e-TAU)	N	N	Y (measured but no group differences described)	Y
	Melvin et al 2019		Before and after study	Y (Adults with suicidality)	SPI +	None	36	N	N	Y - sig decrease pre to post	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
Miller et al 2017	Miller et al 2017		Sequential clinical trial	Y (ED presentation for SA/SI)	SPI + (delivered sequentially within subjects – first universal screening practices, second TAU phase, finally intervention phase where those identified in universal screening receive an in- depth risk assessment, a safety plan and information session, and a series of telephone calls based on case management, psychotherapy , and involvement	Y (delivered sequentially /within measures)	1376	N	Y - sig less SAs in intervention stage (did include fatal suicide acts)	N	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					of significant others for 52 weeks post ED visit)						
	Pauwels et al 2017		Before and after study	Y (Adults with suicidality)	SPI +	None	21	N	N	Y - non sig decrease pre to post	Y
	Spangler et al 2020*		Before and after study	Y (Online community sample who reported suicidality)	Y	None	150	N	N	N	Y
	Stanley et al 2015		Before and after study	N (Veterans)	SPI +	None	95	N	N	N	Y
Stanley et al 2018	Stanley et al 2018		Quasi-experimental	N (Veterans)	SPI + (SPI plus telephone monitoring in initial period after ED presentation to conduct risk assessments, review SPI, and facilitate outpatient referrals or supports – these calls typically ceased after 1	Y (TAU = screening and pharmacotherapy; TAU participants identified retrospectively and some variation likely)	1640 (1186 intervention, 454 TAU)	N	Y (composite of suicidal behaviours) - sig less in intervention	N	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					or 2 weeks of discharge)						
	Stanley et al 2020*	Stanley et al 2020*	RCT	N (College Students)	Y (means restriction counselling component of SPI randomized)	Y (means restriction counselling component of SPI randomized to four groups)	96 (23/ 24/ 23/ 26 in each group)	N	N	N	Y
	Stewart et al 2019		Before and after study (with follow up)	N (Clinicians)	Y	None	12	N	N	N	Y
	Vijayakumar et al 2017		RCT	N (Refugees)	SPI + (volunteers within the refugee camp were provided 20 hours training to provide brief supportive contact twice per month to a set list of at-risk individuals, this contact included	Y (awareness posters)	1283 (639 intervention, 664 control)	Y - non sig difference in change between groups	Y - sig difference in change between two groups (reduction in SA for intervention group but not control)	Y - non sig difference in change	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					empathetic emotional support and completing a safety plan minus means restriction)						
	Zonana et al 2018		Before and after study	Y (Adult outpatients with suicidality)	Y	None	48	Y - no suicides identified in period	Y - non sig decrease in attempts, no difference in self-harm behaviour	N	Y
Bryan et al 2017		Bryan et al 2017	RCT	N (Active-duty army personnel presenting for emergency evaluation)	Other (Crisis response planning (CRP) where individuals receive risk assessment, supportive listening, identify warning signs, self and social strategies, crisis resources, and referral to treatment &	Y (TAU = Safety contract)	97 (32 CRP, 33 e-CRP, 32 TAU)	N	Y (incl 1 fatal act) - sig lower in CRP than contract for safety	Y - declined sig faster in CRP groups	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					e-CRP where individuals receive the above plus identify personal reasons for living)						
Chen et al 2013			RCT	Y (Recent SAs identified by gatekeepers)	Other (TAU + Crisis postcard where at the end of 3-month case management clinicians developed a postcard based on individual's case management and mails this to the individual)	Y (TAU = Case management 3 months)	613 (250 intervention; 363 control)	N	Y - no difference ITT analysis	N	N
Wang et al 2016			RCT	Y (Adults - Recent SA in community)	Other (TAU + Crisis postcard enhanced where, during 3-months of case management,	Y (TAU = Case management 3 months)	67 (34 intervention, 33 TAU)	N	Y - sig longer time to re-attempt in intervention	Y - 'Risk' including self-reported ideation and SA history -	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					participants received 6-weeks of training on developing and using their crisis post card which includes self-awareness of ideation, coping strategies, helpful resources, and crisis supports)					sig lower in treatment group	
		Czyz et al 2019	RCT	Y (Adolescents hospitalized with recent ideation or suicide attempt)	SPI + (MISafeCope = developing a safety plan augmented with motivational interviewing techniques, plus a family session and a booster session to	Y (TAU = recovery action plan – however this includes safety planning)	36 (18 in each group)	Y (group comparisons described not compared)	Y (group comparisons described not compared)	Y - sig higher likelihood of SI in intervention, no difference between groups on severity or duration	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					adapt and refine the safety plan and engage in further motivational interviewing for behaviour change)						
		Kennard et al 2018	RCT	Y (Adolescents hospitalized with recent ideation or suicide attempt)	SPI + (ASAP = chain analysis, safety planning, distress tolerance/ emotion regulation, savouring and switching PLUS a mobile app to continue developing skills in emotion regulation and distress tolerance & their safety plan & receive daily text	Y (TAU = diagnosis, safety assessment, psychoeducation, stabilization , pharmacotherapy varied across sites)	66 (34 intervention, 32 TAU)	N	Y - no sig difference in time to next SA	Y - sig decrease for both groups	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
					messages to assess distress levels and prompt areas of the app to utilize)						
		Stallman et al 2019	RCT	N (College Students with suicidality)	Other (My Coping App – individuals tailor a coping strategies plan focused on emotion regulation strategies and it includes other features such as mindfulness relaxation activities and psychoeducation on healthy living including sleep, nutrition etc.)	N (Waitlist control)	56 (28 in each group)	N	N	N	Y
	Buus et al 2019*		Qualitative	Y (Adult suicide prevention outpatients)	Y	NA (Qualitative)	8	N	N	N	Y

Nuij et al 2021	Ferguson et al 2021	Stallman et al 2021**	Study Design	Population	Intervention	Control	Sample	Outcome measured			
	Chesin et al 2017		Qualitative	N (Clinicians)	SPI +	NA (Qualitative)	50	N	N	N	Y
	DeBeer et al 2019		Qualitative	N (Veterans)	Y	NA (Qualitative)	39 (plus 4 significant others)	N	N	N	Y
	Kayman et al 2015		Qualitative	N (Veterans)	Y	NA (Qualitative)	20	N	N	N	Y
	Levandowski et al 2017		Qualitative	N (Clinicians)	Y	NA (Qualitative)	29	N	N	N	Y
	Stanley et al 2016		Qualitative	N (Veterans)	SPI +	NA (Qualitative)	100	N	N	N	Y

NB: Qualitative studies were mainly focused on acceptability, perceived usefulness and value, and inclusion of supportive others in safety planning rather than efficacy or effectiveness and were thus excluded (not part of the scoping question for our mhGap review); For RCTs additional information on the intervention was supplied.

Abbreviations: ASAP = as safe as possible intervention; ASSIP = attempted suicide short intervention program; CRP = crisis response plan, e- = enhanced, ED = Emergency Department, HOME = Home-Based Mental Health Evaluation, incl = including, N = No, SA = Suicide Attempt, RCT = Randomized Control Trial; SI = suicidal Ideation, sig = significant, SPI+ = safety planning intervention plus additional intervention components, SPI = safety planning intervention, TAU = treatment as usual, Y = Yes

** No included studies, however, five were described to highlight limitations and justify lack of included studies

* Identified in mhGAP searches and excluded

Appendix III. AMSTAR-2 ratings

The AMSTAR-2 (Shea et al., 2017) ratings for each of the discussed reviews (Ferguson et al., 2021; Nuij et al., 2021; Stallman & Allen, 2021). The AMSTAR-2 checklist can be obtained from (<https://amstar.ca/Amstar-2.php> - last accessed 30th April 2022)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9 (a/b)	Q10	Q11 (a/b)	Q12	Q13	Q14	Q15	Q16
1.	N	P	Y	P	Y	Y	N	P	P / P	N	NMA	NMA	NA	Y	NMA	Y
2.	Y	Y	N	P	Y	Y	N	Y	Y / N	N	N / N	Y	Y	Y	Y	Y
3.	Y	P	N	P	Y	Y	Y	NA	NA	NA	NMA	NMA	NA	NA	NMA	N

Y: Yes, PY: Partial Yes, N: No, NMA: No meta-analysis conducted, NA: Not applicable

1. Ferguson, M., Rhodes, K., Loughhead, M., McIntyre, H., & Procter, N. (2021). The effectiveness of the safety planning intervention for adults experiencing suicide-related distress: A systematic review. *Archives of Suicide Research*, 1-24.
2. Nuij, C., van Ballegooijen, W., De Beurs, D., Juniar, D., Erlangsen, A., Portzky, G., ... & Riper, H. (2021). Safety planning-type interventions for suicide prevention: meta-analysis. *The British Journal of Psychiatry*, 219(2), 419-426.
3. Stallman, H. M., & Allen, A. (2021). Acute suicide prevention: A systematic review of the evidence and implications for clinical practice. *Journal of Affective Disorders Reports*, 5, 100148.