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Suicide capacity within the ideation-to-action framework: a scoping review protocol

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ABSTRACT

Introduction A core facilitator of the transition from suicidal thoughts to suicide attempt is the individual's capacity for suicide. Suicide capacity is a theoretically universal concept adaptable for specific groups that is hypothesised to comprise three contributing factors: acquired capability, for example, previous self-harm; dispositional, such as genetic influences and practical, knowledge of and access to lethal means. Given that suicide capacity as a concept is continuing to develop, a review and synthesis of the current literature is timely to ensure future research and development of suicide prevention strategies are based on evidential knowledge. The aim of this review is to map the available evidence to provide an overview of factors that contribute to an adult's capacity for suicide.

Methods and analysis This review will encompass five stages. Studies will be identified through broad search strings applied to 11 academic databases: Academic Search Ultimate, APA PsycArticles, APA PsycINFO, CINAHL, Psychology & Behavioural Sciences, & Sociology Source Ultimate via EBSCOHost Megafile Ultimate; PubMed; Science Direct; Wiley Online; Taylor & Francis and ProQuest dissertations and theses. Grey literature databases and key suicide organisations will also be searched for relevant literature. Two reviewers will independently screen titles and abstracts then review full texts to identify articles meeting inclusion criteria. Articles will be assessed for eligibility based on suicide attempt history, primary research study design, language and publication date. Data from eligible full texts will be extracted using a predesigned template for analysis. The synthesisation method will be textual narrative synthesis with an incorporated quality appraisal checklist tool.

Ethics and dissemination Ethics approval is not required for this scoping review as no human participants are involved. Study findings will be shared with key suicide organisations, through peer-reviewed publications, and conference presentations.

Strengths and limitations of this study

- To our knowledge, this scoping review will be the first to review and summarise the literature that has focused on contributing factors to an individual's capacity for suicide beyond the single factor of acquired capability.
- This study uses a broad search strategy developed in consultation with a research librarian to maximise coverage of the topic.
- This protocol follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews checklist to ensure methodological rigour.
- The inclusion of a synthesisation method that includes quality appraisal as part of the analysis.
- Limited to English published studies since 2005 comprising individuals aged 18 years or above within the ideation-to-action framework.

INTRODUCTION

Despite various suicide prevention and intervention programmes, there has not been a commensurate significant decrease in suicide rates. WHO reports approximately 800 000 suicides annually.[1] Over 70% of global suicides are individuals who are aged 30 years or older,[2] 53% of suicides in the USA are from individuals aged 45 years or greater[3] and more than half of all suicides in Australia occur between the ages of 30 and 59 years.[4] It is estimated that the number of people who attempt suicide is much greater, ranging from 20 to 40 attempts per suicide.[5 6] Within the USA, there is one suicide attempt every 27 s[3] and over 65 000 people attempt to take their own life in Australia each year.[7] Suicide attempts that do not result in death create aftereffects that impact the survivor and family members, friends and society. These include suicide stigma and emotional strain[8] as well as bodily disfigurement and/or permanent disability.[9] Suicide attempts may also lead to the development of psychological disorders such as post-traumatic stress disorder.[10] Family members often suffer significant emotional distress and become panicked and stressed believing that another attempt is imminent.[11] Furthermore, there are large financial costs to society associated with suicide attempts, in excess of US$5.2 billion in the USA.[12] Thus, suicide attempts place a high burden on individuals, families and society as a whole.

Given the above, better understanding the movement from thinking about suicide to attempting suicide becomes critical. The ideation-to-action framework is a theoretical framework that focuses on this movement and includes several contemporary theories of suicide that differentiate the development of suicide ideation from the movement from suicide ideation to suicide attempt. This framework has been criticised for reiterating previous conclusions; that there are differences in risk factors for suicidal ideation and suicide attempt.[13] However, Klonsky and May[14] argue that the framework goes beyond previous conclusions because of its theoretical implications. That is, the theories take the position that risk factors need to be categorised by ideation, attempt or both and new-generation theoretical models of suicide should address the development of ideation, movement and attempt as related but distinct processes. This distinction is important as the majority of individuals who experience suicidal ideation do not necessarily make the progression to suicide attempt.[15] Additionally, frequently identified risk factors for suicidal ideation, such as depression and hopelessness, do not differentiate between suicide ideators and suicide attempters.[16] Moreover, from a meta-analysis of 50 years of research on risk factors for suicidal thoughts and behaviours, no category of risk factors associated with suicide attempts were found to predict an attempt much greater than random guessing.[17] Given the poor utility of previously associated risk factors with suicide attempts, it is hoped that shifting research to examine factors within an ideation-to-action framework that differentiates between non-attempting ideators and suicide attempters will help towards understanding the movement from ideation to action.[18] Within this framework, a core facilitator of the transition from suicidal thoughts to suicide attempt appears to be the individual's capacity for suicide. This is defined as the combination of contributing factors that enable an individual to make an attempt on their life.[19 20]

The ideation-to-action framework and capacity-for-suicide concept is one of the most recent influential theoretical innovations within the field of suicidology and has generated a considerable amount of research.[21] Three suicide theories that feature suicide capacity are positioned within the framework. These are displayed in table 1 and include the Interpersonal Theory of Suicide (IPTS),[22 23] the Integrated Motivational-Volitional model (IMV)[24 25] and the Three-Step Theory of Suicide (3ST).[19] The oldest of the three theories developed in 2005, the IPTS, innovated suicidology research. It proposes that suicide ideation alone is insufficient for a suicide to occur as an individual has to overcome the evolutionary and biological will to remain alive.

The IPTS hypothesises that the factor of acquired capability for suicide is needed in addition to suicide ideation. The IPTS postulates that the more an individual experiences painful and provocative events, such as non-suicidal self-injury (NSSI), the more they habituate to the fear and pain of attempting suicide. The individual thus acquires the capability to make a suicide attempt. The second theory within the ideation-to-action framework, the IMV, builds on the acquired capability factor within its action construct. This concept, developed by O'Connor,[24] is referred to as the volitional phase. Although the volitional phase retains the acquired capability factor from the IPTS, it also introduces other factors to the concept of suicide capacity, such as access to lethal means, intention and imitation. This differs from the IPTS as it suggests that the acquired capability factor alone is not sufficient for an individual to progress from ideation to action and acknowledges that there are other factors involved. The most recent theory within the ideation-to-action framework, the 3ST,[19] expands the necessary combination of factors required to transition from suicidal thoughts to suicide attempt. The 3ST posits that to progress from suicidal ideation to suicide attempt, an individual must possess the capacity to make an attempt. According to the

Table 1 Theoretical models of suicide within the ideation-to-action framework

	Interpersonal Theory of Suicide (IPTS)[22 23]	Integrated Motivational-Volitional model (IMV)[24 25]	Three-Step Theory of Suicide (3ST)[19]
Ideation	Suicide ideation arises from the simultaneous presence of social isolation (thwarted belongingness) and the perception that one is a burden on others and/or society (perceived burdensomeness).	Suicide ideation develops from feelings of entrapment brought on by experiencing defeat and humiliation from which an individual perceives suicide as the only solution.	Suicide ideation results from a combination of pain, physical and/or psychological and hopelessness that escalates from moderate ideation to strong ideation when pain exceeds any reason to live (connectedness).
Action	To make a suicide attempt, an individual must have an acquired capability for suicide which is characterised by elevated pain tolerance and fearlessness of death.	Maintaining the acquired capability factor, the volitional phase includes other moderators such as impulsivity, intent/planning, exposure to suicide, access to lethal means, mental imagery. The volitional phase underlies the transition from suicidal ideation to suicide attempt.	To make a to suicide attempt, an individual must possess the capacity for suicide comprising three distinct contributing factors: the acquired capability factor from IPTS and IMV, dispositional contributors that are largely genetic and practical factors (eg, knowledge of and access to lethal means).

3ST, suicide capacity contains three contributing factors. The single acquired capability factor is retained from the IPTS and the IMV, acknowledging that repeated experiences involving fear, pain, injury and death, increase an individual's capacity to attempt suicide. A second factor refers to dispositional variables that are largely genetic, such as pain tolerance where low pain sensitivity increases suicide capacity and personality traits. The final factor includes practical variables that are also included in the IMV, such as access to and knowledge of lethal means. For example, easier access to firearms or pesticides increases suicide capacity, likewise exposure to a family member or friend who has attempted suicide increases suicide capacity. Suicide capacity as suggested by the 3ST retains factors suggested by the IPTS and the IMV but adds genetic factors. Importantly, the 3ST proposes that it is the combination of factors that facilitates a suicide attempt.

Since the introduction of the IPTS in 2005, there has been an increase in studies relating to the ideation-to-action framework[26] and this suggests that the concept of suicide capacity has the potential to advance our understanding of suicidal behaviours. However, results have been varied regarding the factors comprising suicide capacity. A previous systematic review and a meta-analysis on the factor of acquired capability has found partial support for associations between the factor of acquired capability and suicide attempts,[27] and weak relationships between acquired capability and suicide attempts.[28] Furthermore, a narrative review concluded further research is needed to understand factors that contribute to an individual's capacity for suicide.[29] In addition to these reviews, individual studies have reported support for the volitional phase of the IMV,[30 31] and support for suicide capacity as suggested by the 3ST.[32 33] The diversity of results on the contributing factors of suicide capacity led May and Victor[20] to conclude that despite the increase of research on the construct, further work is needed to continue the refinement and understanding of suicide capacity and suicide attempts.

There have been two previous systematic reviews,[27 28] however both of these focused on the single factor of acquired capability rather than suicide capacity as a whole. In this sense, the other reviews by the nature of their design and focus have produced a limited perspective on suicide capacity, although one consistent with their research questions. Given this limitation and the recent increase in suicidology publications as evidenced by a recent bibliometric analysis,[26] it is timely to review and report current research as well as map a broader range of literature and variables. The proposed scoping review does this by including literature that was previously excluded from other reviews in order to identify and map research that has focused on the contributing factors (vs singular factor) of suicide capacity. This focus on suicide capacity within the ideation-to-action framework is based on the substantial amount of research that this concept has generated.[21] For refinement and continued understanding of suicide capacity to occur, there needs to be a clear conceptualisation of the current status of research on suicide capacity within the ideation-to-action framework. Having this will provide researchers with an empirical foundation on which to embark on future research that is clearly aligned with furthering the refinement and understanding of suicide capacity. In order to do this, prior research on suicide capacity needs to be scoped for commonality of findings, gaps in evidence-based findings, and future directions for research.

An appropriate methodology to achieve the above and for mapping developing concepts, such as suicide capacity, is a scoping review.[34] A scoping review is a literature review technique that synthesises research from an array of sources to provide an overview of a topic in response to a broad research question.[35] We are proposing to undertake a scoping review that will synthesise the literature on suicide capacity and contributing factors within the ideation-to-action framework. Currently, there is no registered or completed systematic review of the literature including all contributing factors of suicide capacity. This scoping review aims to produce a broader, more holistic overview of the suicide capacity literature incorporating all recent literature to conceptualise suicide capacity by classifying factors. It brings together in one review studies, variables and foci that are broader than the other two reviews.[27 28] Without an extensive review of the literature and pinpointing limitations of previous research, suicide prevention and intervention programmes may not be based on empirical evidence which can negatively impact on programme efficacy. Furthermore, a scoping review will provide an empirical foundation that future research can be based on. In addition, by publishing a clearly articulated a priori protocol with inclusion and exclusion criteria, decisions such as what studies are included in the review are made transparently and not arbitrarily thus limiting reporting bias.[36] According to Moher *et al*,[37] the gold standard for identifying reporting bias in a completed review is to compare it with its protocol.

METHODS AND ANALYSIS

This review will follow the five-stage scoping review methodology presented by Arksey and O'Malley[38] that has been further enhanced by Levac *et al*.[39] Adding to the methodology are recommendations from the Joanna Briggs Institute (JBI),[40] including the development of an a priori protocol, using the PCC mnemonic that stands for Population-Concept-Context in the construction and clarification of the research question, and adherence to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).[41] A scoping review has been selected as opposed to systematic literature review as the aim is not to address a relatively precise research question, but to explore the breadth of the literature and map conceptual boundaries.[42] Moreover, suicide capacity is at a stage where it would be untimely to ask specific research questions

because without an empirical overview of the literature it is unclear what research questions need to be asked.

The stages of the proposed review are: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data and (5) collating, summarising and reporting the results.

Stage 1: Identifying the research question

To identify the research question, the following elements of the protocol have been clarified using the PCC mnemonic.

Population

Individuals attempt suicide from all age groups, however adolescents and children may have additional factors that impact their decision-making capabilities and the mechanisms involved in the movement from ideation to action.[43 44] Including these populations alongside adults could impact the clarity of the review. Therefore, the population for this review focuses on adults that are aged 18 years or above who have attempted suicide.

Concept

Identifying what is and what is not known about the concept of suicide capacity within the ideation-to-action framework. This will include all studies that reflect factors that contribute to an individual's capacity for suicide as suggested by each of the three theoretical models.

Context

There will be no restriction on location or type of research design. However, a quality appraisal checklist tool will be used in stage 5 to assess the studies. Based on the authors' language competencies, only studies published in English or translated to English will be included.

Thus, the aim of the scoping review is to map the empirical literature on the concept of suicide capacity within the ideation-to-action framework for adults. To achieve this aim, the following questions will guide the review:

1. What is currently known about the concept of suicide capacity within the ideation-to-action framework?
2. Through what methods has this knowledge been obtained?
3. What are the limitations of the research?
4. What research opportunities are present due to gaps in the research?

Stage 2: Identifying relevant studies

The search strategy and database selection were developed in consultation with a research librarian with the express aim to comprehensively capture and identify relevant studies that meet the eligibility criteria. Initially, Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews and Effects, the International Prospective Register of Systematic Reviews and the *JBI Evidence Synthesis* journal will be searched for any previous systematic reviews on suicide capacity. This was planned to begin in December 2020. Additionally, the following 11 electronic academic databases have been selected as they ensure the most adequate and sufficient coverage of the literature relating to suicide attempts while minimising repetition of results.[45] The electronic databases to be searched independently of each other are: Academic Search Ultimate, APA PsycArticles, APA PsycINFO, CINAHL, Psychology & Behavioural Sciences, & Sociology Source Ultimate via EBSCOHost Megafile Ultimate; PubMed; Science Direct; Wiley Online; Taylor & Francis and ProQuest dissertations and theses.

The following search strategy has been devised to be broad as it aims to capture all relevant studies and will include title and abstract searches using the following search string that can be found with limiters in the search strategy online supplemental file: suicid* AND attempt* AND capa* OR "access to means".

However, for databases that advise against the use of truncations such as PubMed, searches will include permutations of several terms related to the words "suicidal behaviours", "attempt", "capability" and "capacity". Complete terms can be found in the search strategy online supplemental file.

This search string has been piloted in the APA PsycINFO database and no modifications have been required as no additional keywords were identified from the returned studies. Besides using databases, a search of the grey literature will also be conducted. Grey literature, for the purpose of this study, is referred to as documents published by non-commercial entities.[46] Sources will include a grey literature database (www.opengrey.eu), websites of key suicide organisations that publish research from Australia, the USA, Europe and Google Scholar. The identified suicide organisations to be searched include:

Australia:

- Australian Institute for Suicide Research and Prevention.
- Australian Suicide Prevention Foundation.
- Beyond Blue.
- Black Dog institute.
- Lifeline.
- National Mental Health Commission.
- Suicide Prevention Australia.

USA:

- American Association of Suicidology.
- American Foundation for Suicide.
- American Medical Association.
- National Institute of Mental Health.

Europe:

- International Association for Suicide Prevention.
- Samaritans.

Initial database searches will be completed independently by two reviewers with search results exported and collated in the reference management software EndNote (V.9.2).[47] Reviewers will compare results after each database search to ensure homogeneity. Any discrepancies between search results will be discussed between reviewers and if no agreement can be reached, a third reviewer will resolve the difference before progressing to study selection. Duplicates will be removed after the

Table 2 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Adults aged 18 years and over.	Studies that only contain participants under the age of 18 years.
Studies that include a measure of suicide attempt and/or suicide. A suicide attempt will be defined as 'a self-inflicted, potentially injurious behaviour with a nonfatal outcome for which there is evidence (either explicit or implicit) of intent to die'.[60] This definition has been chosen as it is the definition used throughout the ideation-to-action framework.	Studies that focus only on suicide ideation.
Studies that include factors that contribute to an individual's capacity for suicide.	Studies that only concentrate on non-suicidal self-injury or on assisted suicide.
Primary research articles published in peer-reviewed journals or located via a search of the grey literature are included to ensure scholarly credibility.	Articles not based on a primary research study or design or type of literature review.
Published or translated in English.	No English translation.
Published from January 2005 as this was when the ideation-to-action framework was developed and risk factor research started to differentiate between non-attempting ideators and attempters.	Published prior to January 2005.

completion of all database searches. Key articles, that is, recommended papers from updates on the ideation-to-action theories of suicide or brief reviews, reference lists will also be hand-searched for missing literature.[48] Following the academic databases search, grey literature will be searched, starting with suicide organisations. Then the Google Scholar search will be completed using the title search function as opposed to full-text search as more grey literature is returned in Google Scholar via title searches than full-text searches.[49] In addition, as the search engine displays results by relevance, the search will be limited to the first 200 references as recommended by Bramer *et al*.[45] To keep track of search history and search results, a Microsoft Excel spreadsheet will be used by each reviewer.[44]

Stage 3: Study selection

The criteria mentioned in table 2 will determine whether or not a study is eligible for a full review. While the criteria exclude studies that only contain individuals outside the specified age range, it is possible that studies may include participants from both outside and inside the age range. If so, the study will be included. In addition, studies that focus exclusively on assisted suicide/euthanasia or NSSI will be excluded as per the suicide attempt definition that is included in table 2. It is necessary to include suicide attempts as an inclusion criterion because each of the theoretical models suggest that to attempt suicide an individual must have the capacity to do so. Therefore, while individuals with suicidal ideation may have some capacity towards attempting suicide, there is no evidence that they have reached a level of capacity required to attempt suicide. It is necessary to include studies that may not compare the two groups, such as case studies or psychological autopsies. Because the goal is to map the literature on factors identified within the ideation-to-action framework that contribute to suicide attempts, it is possible that articles solely including suicides or suicide attempters will be useful for exploring factors that contribute to suicide attempts. Articles will initially be screened via title and abstract independently by each reviewer. Following this, the remaining articles will undergo a full-text review for eligibility as per the inclusion and exclusion criteria. At the end of the review phase, the reference lists of eligible texts will also be searched for any additional sources that were not identified through the database and grey literature searches. Both reviewers will compare lists and resolve any discrepancies through discussion with respect to the inclusion and exclusion criteria. However, if consensus cannot be reached, a third reviewer will resolve the difference. The final list of full-text studies to be charted will be recorded in EndNote (V.9.2).[47]

Stage 4: Data extraction

Extracting the data involves the production of a logical and descriptive summary of the results in line with the objective and research question.[50] Included studies will be reviewed and charted independently by the first reviewer using a modified version of the JBI data charting template, which extracts information such as the study citation details, study characteristics, factors of suicide capacity, limitations and author(s) suggestions for future research.[51] As charting the results can be an iterative process, the template may need to be updated throughout the process if reviewer 1 encounters additional unforeseen data pertaining to the research question. Therefore, to test the template reviewer 1 will trial the extraction form for five studies and then discuss the outcome of the trial with reviewer 2. If reviewer 1 decides that the template needs to be reviewed throughout the charting process and changes are necessary, discussion will take place with reviewer 2 and consensus will need to be reached before any changes are made. However, a third reviewer is available to adjudicate if consensus cannot be achieved. Once the data have been charted, the template details will be entered into Microsoft Excel and sorted

by commonalities. In order to check the validity of the charted data and act as a first quality check, reviewer 2 will audit a random selection of articles (20% of final article total) to identify any potential charting errors and/or biases. The outcome of this review will be discussed with reviewer 1 with a view of reaching consensus over the charted data. Should consensus not be reached between reviewers 1 and 2, reviewer 3 will resolve the disagreement to address any inaccuracies in the charting of data with respect to the four questions guiding the review.

Stage 5: Collating, summarising and reporting the results

To clearly present the amount of available literature on suicide capacity and the stages of article selection for the review, a flow chart and a checklist will be used. This includes the PRISMA flow chart[52] and the PRISMA-ScR checklist.[41] It is expected that the results will include both quantitative and qualitative studies subsequently restricting the methodological options to arrange, analyse and display the results. The first author will complete the analysis and synthesise the results. Although quality analysis is not imperative to a scoping review, an appraisal of the included research will be completed in the analysis to enhance the conclusions drawn.[53] Full texts will be collated in NVivo (V.12),[54] allowing for analysis via the synthesisation methodology of textual narrative synthesis.[55] However, this methodology may change due to a greater awareness of the results.[56] As a stepwise method that has previously been used to map concepts in a scoping review (eg, children's therapeutic footwear),[57] textual narrative synthesis includes quality appraisal as part of the analysis, addressing limitations such as study bias and design.[58] The first step involves grouping the studies into subgroups. For this review, it is anticipated that the subgroups will include the three contributors to suicide capacity as suggested by the theories within the ideation-to-action framework.[16–21] The second step involves producing commentaries for each study regarding key variables and themes while addressing limitations such as study design and bias. To systematically appraise the quality of each study, an adaptation of a JBI[59] critical appraisal tool checklist will be used addressing participant groups, confounding factors, measures used and analytical techniques. Finally, the third step requires discussion of differences and similarities among subgroups to synthesise and report the studies coherently.

ETHICS AND DISSEMINATION

To our knowledge, this is the first scoping review to synthesise the literature on suicide capacity beyond the single factor of acquired capability. This review will identify gaps in knowledge, suggest research opportunities for further advancement and clarification of the concept and may inform intervention and prevention strategies. The results of the scoping review will be published in a peer-reviewed journal, a thesis, presented at conferences and shared with suicide organisations by emailing a summary of the results coupled with a copy of the peer-review published article. Ethics approval is not necessary for this review as no data is being collected from human participants.

Patient and public involvement statement

The current project is a scoping review that will derive data from previously published studies. It does not involve the acquisition of new information. Patient and public involvement is not applicable in this situation.

Limitations

We will only include English-language articles potentially introducing language and cultural biases. This may result in the exclusion of relevant articles that may contain contributing factors which are not primarily Eurocentric. Another limitation is the exclusion of individuals aged 18 years or below and because of this limitation the results can only be interpreted within the context of adults. Only including articles published after January 2005 may result in some contributing factors of suicide capacity to be overlooked. However, much of suicide research prior to 2005 did not distinguish risk factors for suicidal ideation from risk factors for suicide attempts. The IPTS started a resurgence in suicidology and new-generation theoretical models of suicide differentiated risk factors between the two groups. It is this research that specifically targets risk factors for suicide attempts that the scoping review aims to synthesise. In addition, factors that contribute to a capacity for suicide not yet incorporated within ideation-to-action models of suicide may not be captured by this review. This may result in factors that can contribute to an individual's capacity for suicide not being included. Therefore, our findings will be restricted within the context of the ideation-to-action framework.

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Search Strategy for Academic and Grey Literature Databases

Database	Search strings	Limiters
Academic Search Ultimate, APA PsycArticles, APA PsycInfo, CINAHL, Psychology & Behavioural Sciences, & Sociology Source Ultimate via EBSCOHost Megafile Ultimate; Wiley Online Library; Taylor and Francis; ProQuest Dissertations and Theses; Google Scholar; and www.opengrey.eu	suicid* AND attempt* AND capa* OR "access to means"	From 1 January 2005
PubMed, Science Direct, and suicide organisations	(suicidality OR "suicidal behaviour" OR suicide OR suicidogenesis OR suicidology) AND (attempted OR attempter OR attempting OR attempts) AND (capabilities OR capable OR capableness OR capacities OR "capacity for") OR ("access to means")	From 1 January 2005