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Factors influencing suicide risk assessment clinical practice: protocol for a scoping review

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ABSTRACT

Introduction Every year, suicide accounts for nearly 800 000 deaths worldwide. Appropriate risk assessment and intervention are imperative since evidence demonstrates that a large proportion of those who die by suicide visit health professionals prior to their death. Much previous research has focused on identifying patient-level risk factors that can improve the risk assessment process through scales and algorithms. However, the best practice guidelines emphasise the importance of clinical interviews and prioritise the clinician's final judgement. The purpose of this review is to (1) understand the clinician and organisational level barriers and facilitators that influence a clinician's assessment of suicide risk, (2) identify the types of biases that exist within this process and (3) list any evidence-based training protocols and educational initiatives to aid (or support) clinicians with this process.
Methods and analysis This scoping review protocol uses the Arksey and O'Malley framework, and Preferred Reporting Items for Systematic Reviews and Meta-Analyses reporting guidelines for scoping reviews. Literature will be identified using a multidatabase search strategy developed in consultation with a medical librarian. The proposed screening process consists of a title and abstract scan, followed by a full-text review by two reviewers to determine the eligibility of articles. Studies outlining any factors that affect a clinician's suicide risk assessment process, ranging from individual experience and behaviours to organisational level influences, will be included. A tabular synthesis of the general study details will be provided, as well as a narrative synthesis of the extracted data, organised into themes using the Situated Clinical Decision-Making framework.
Ethics and dissemination Ethical approval is not required for this review. Results will be translated into educational materials and presentations for dissemination to appropriate knowledge users. Knowledge outputs will also include academic presentations at relevant conferences, and a published, peer-reviewed journal article.

INTRODUCTION

Every year, close to 800 000 individuals die by suicide around the world.[1] Among these, research from the USA has shown that around 45% of individuals have visited mental health and primary care providers in the month

Strengths and limitations of this study

► Findings from this review will aid in providing a catalogue of broader, non-patient-related factors that affect the suicide risk assessment process.
► Strengths of this study include the importance of the topic to the suicide risk assessment process, use of an established scoping review methodology, a rigorous search strategy developed by a medical librarian and a systematic study selection and data extraction process carried out by two health service researchers.
► Limitations include the restriction to English language studies and the potential to miss relevant studies in the grey literature.
► Consultation with content experts will be included to mitigate some of the limitations; however, it should be noted that this process can also introduce a risk of bias to the final findings.

prior to their death.[2] Therefore, targeting healthcare providers for appropriate suicide risk assessment and intervention is imperative. Assessing and managing suicide risk are considered a core competency of mental healthcare. This process of risk assessment and management for suicide is best understood as structured evaluation, intervention and subsequent reassessment of a patient's likelihood to attempt suicide.[3] Clinicians from different disciplines carry out risk assessment across a variety of care settings, often with distinct goals and scopes of practice. Within primary care, the key goal is to determine whether an individual must be referred to a more specialised care environment, whereas within emergency rooms, the goal is often to decide whether a patient can be discharged from the hospital or requires a more restrictive level of care. Finally, within inpatient mental health settings, ongoing screening is usually required to determine what the best plan of action is for patients that are admitted due to being at high risk of suicide.[4]

Risk assessment falls within the scope of decision-making, of which there are largely two classes—clinical judgement (or clinical decision-making), which refers to a clinician's expert opinion based on their data gathering, and mechanical prediction, which refers to purely statistical and algorithmic prediction. A previous meta-analysis of 136 studies of human health and behaviour demonstrated that mechanical prediction was consistently more accurate than clinical judgement.[5] With large public concern surrounding deaths by suicide, much research over the past 50 years within this field has focused on identifying patient risk factors[6] and developing risk assessment tools to better recognise patients at the highest risk of committing suicide, including the Beck Hopelessness Scale,[7] Columbia-Suicide Severity Rating Scale,[8] Nurses' Global Assessment of Suicide Risk[9] and SAD PERSONS,[10] among others. Unfortunately, there has been limited supporting evidence for the use of risk scores from these tools as the sole basis for decision-making since the predictive ability of these tools is rather low, given a low overall prevalence of suicides in the general population (0.01%).[4]

Due to the large evidence base showing the lack of predictability and lack of effectiveness of the many developed suicide risk assessment tools, such tools have been presented as more of an aid for clinical decision-making to uncover pertinent information,[4] rather than guide clinical judgement. WHO guidelines suggest that suicide risk should be specifically evaluated with clinical interviews assessing psychological and social functioning of the patient.[11 12] The National Institute for Health and Care Excellence guidelines on suicide risk assessment similarly emphasise the importance of the clinician's final judgement, and recommend to 'not use risk assessment tools and scales to predict future suicide'.[13] Given the challenges in behaviour prediction, a state-of-the-art review on the topic has prompted the need for understanding what constitutes a reasonable standard of care in suicide risk assessment.[14]

There are a multiplicity of concerns complicating the clinical management of suicide risk, and despite the increasing focus on targeting risk assessment and prevention interventions at high-risk patients, little is known about the contextual, non-patient specific factors that influence a clinician's decision-making process while conducting a suicide risk assessment. Clinical experience, a thorough knowledge base and the ability to think critically are a few of the many skills required for any clinical decision-making process.[15] Theories on decision-making based on human thought processes have suggested a dual decision-making theory wherein clinicians use both intuitive and analytical processes.[16] Intuitive decisions are fast and abbreviated, making use of heuristics and short cuts for familiar scenarios. Occasionally, this use of short cuts can lead to overconfidence and complacency, predisposing the clinician to biased decisions.[17] It is important to understand how clinicians' cognitive factors such as intuition and experience contribute to their risk formulation process and confidence in their decision.

An important starting line for educational and training purposes is to identify the variety of clinical experiences that exist within the practice of suicide risk assessment,[18] and to understand the barriers and facilitators for consistent clinical practice.

This paper outlines a protocol for a scoping review, with the primary purpose being to understand how clinician and organisational level characteristics—factors other than patient-level ones—can influence the suicide risk assessment process, highlighting that mental health professionals are not free of biases, some of which can unsuspectingly affect their decisions.[19–21] The findings from this review will allow us to explore the broad topic of suicide risk assessment and increase awareness of these factors. Increased awareness of these elements can eventually lead to more efficient practice.

METHODS AND ANALYSIS

The scoping review is a rigorous and systematic method for mapping key concepts, research areas and gaps in knowledge, especially in an area that has not been comprehensively reviewed before.[22] One of its main strengths include presenting the results in an accessible format for knowledge users.

This review follows the seminal framework outlined by Arksey and O'Malley,[23] and advanced by Levac et al.[24] Arksey and O'Malley propose a six-step framework for carrying out a scoping review, including: (1) identifying the research question, (2) identifying relevant literature, (3) study selection, (4) charting the data, (5) collating, summarising and reporting the articles and (6) consulting and translating knowledge.[23] In order to ensure relevance to patient care, our study team also includes knowledge users. This protocol uses the recently developed 20-item Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) extension for Scoping Reviews[25] to ensure appropriate rigour. The scoping review searches will be completed in December 2018, and subsequent screening and analysis of the literature search findings will be completed in May 2019.

Detailed further below are the various steps involved within the Arksey and O'Malley process, as applied to this scoping review:

Identifying the research question

The aim of this scoping review is to identify the personal, professional and organisational level barriers and facilitators that influence the suicide risk assessment process carried out by a clinician. To meet these aims, this review seeks to answer the following questions:

1. What non-patient specific factors influence the suicide risk assessment process (ie, how a clinician conducts a suicide risk assessment, and how they arrive at their final clinical judgement, given their scope of practice)?
2. What types of inherent clinician biases can exist within this process?

3. Is there evidence of training and educational initiatives that have helped clinicians improve on these contextual factors?

Identifying relevant studies

The comprehensive search strategy was iteratively developed in consultation with a medical librarian (SMB), and was validated through the retrieval of a key set of relevant studies. To ensure a comprehensive search of the health sciences literature, we used the following primary electronic databases: Medline, PsycINFO, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Education Resources Information Center (ERIC). The search query was first developed in Medline, using the Ovid interface which allows for fine tuning using Medical Subject Headings indexed by the National Library of Medicine's controlled vocabulary.[26] Preliminary results from searching within Medline has identified 860 total articles, as of November 2019. The Ovid interface also allows for a more accurate translation of the search strategy to query other Ovid-based databases such as PyscINFO and Embase.

The search strategy consisted of subject headings, keywords and related terms for the concepts of suicide risk assessment and experiences of health personnel relating to this behaviour. Terms for the concept of suicide risk assessment included 'risk assessment' combined with 'suicide', 'suicidal ideation' or 'suicide attempt'. The primary search terms for the concept of clinicians' experiences included 'attitude of health personnel', 'knowledge, attitudes and practice' and 'physician-patient relations'. A detailed search strategy can be found in box 1.

Our search is limited to the English journal articles, without date or study type restrictions. All bibliographic results from the search were stored using the citation management program EndNote [http://endnote.com/]. The citations will also be downloaded into Covidence [www.covidence.org], a literature review software for screening, charting and tabulation purposes.

Study selection

After a combined pilot with both reviewers, to ensure common understanding of the inclusion criteria, all articles will be independently screened in two stages. Study eligibility will be determined beginning with a title and abstract scan, followed by a full-text review stage.

In order to be eligible, studies must involve the following criteria: (1) study the risk screening or assessment process around suicide, (2) include clinicians' thinking, attitudes or experiences and (3) apply to patients being assessed within primary care, Emergency Departments or mental health and addiction outpatient or inpatient settings. We will include published literature reporting on previous literature reviews, quantitative, qualitative, mixed or multimethods research. Exclusions will include articles primarily detailing the assessment of risk of deliberate self-harm (DSH) or non-suicidal self-injury (NSSI). This

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Box 1 Search strategy for Ovid Medline

1. Risk Assessment/or 'Healthcare Failure Mode and Effect Analysis'/or (risk* adj4 assess*).ti,ab,kf.
2. Suicide/or Suicidal Ideation/or Suicide, Attempted/or suicid*.ti,ab,kf.
3. 'Attitude of Health Personnel'/or Practice Patterns, Physicians'/or Bias/or Observer Variation/or exp Prejudice/or Culturally Competent Care/or Alert Fatigue, Health Personnel/or Physician-Patient Relations/or Professional-Patient Relations/or Nurse-Patient Relations/or Nonverbal Communication/or Health Knowledge, Attitudes, Practice/or Clinical Competence/or Clinical Decision-Making/or Clinical Protocols/or Duty to Warn/or Clinical Decision-Making/or Ethics, Medical/or Professional Role/or Nurse's Role/or Physician's Role/
4. Inservice Training/or Simulation Training/or Staff Development/or Education, Continuing/or Education, Nursing, Continuing/or Education, Medical, Continuing/or 'Internship and Residency'/or Teaching Rounds/
5. exp Health Occupations/or exp Health Personnel/or (clinician* or 'health care professional*' or 'healthcare professional*').ti,ab,kf.
6. or/3–5
7. and/1–2,6
8. limit 7 to English language

adj4—searches within four words of each other (four words before and four words after) in either direction.
*—truncation technique to broaden search to include words with different endings and spellings.
ti—searches field that contains the English language version of a title.
ab—searches author-written abstracts.
kf—retrieves every keyword heading that includes the particular word.
exp—indicates that a subject heading is 'exploded' to include all of the narrower subject headings beneath it in the hierarchy.

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is because DSH and NSSI differs from suicidal behaviours in intent, level of lethality, level of psychological pain and cognitive constriction. In general, DSH and NSSI are behaviour undertaken to feel better or cope, whereas suicide-related behaviours are undertaken to end the capacity to feel at all by ending one's life.[27]

Ratings will be documented on the Covidence software as 'Yes', 'No' or 'Maybe', and at the end of each round, ratings will be compared and resolved by the pair through discussion and consensus, with a third reviewer in case of no further resolution. All reviewers will use a pilot-tested screening tool developed for this review, including the three main criteria listed above, iteratively adding additional details when necessary. The inter-rater reliability will be calculated, with a Cohen's Kappa threshold of greater than or equal to 0.70, indicating substantial agreement.[28]

Charting the data

Charting data involves organising and interpreting data by sifting and sorting through material according to key issues and themes.[23] Included studies will be reviewed and charted independently by the two reviewers, using a standardised charting form including the required data, where available. Details of the charting form can be found within box 2.

Box 2 Charting details

General details
► Author(s)
► Year of publication
► Study location/Country of publication

Study characteristics
► Clinician's discipline (ie, family physician, psychiatrist, mental health nurse, ED nurse)
► Patient population (eg, diagnosis, age)
► Healthcare setting (ie, primary care, ED, inpatient, outpatient)
► Study Methodology (ie, qualitative, quantitative, mixed methods)

Non-patient specific factors affecting suicide risk assessment (RQ1)
► Factor(s) reported on as affecting suicide risk assessment (eg, clinician's age, clinician's experience level, time, patient's legal status)
► Overall effect of factors on suicide risk assessment process (ie, barrier, facilitator)

Biases (RQ2)
► Types of biases listed within study (as previously classified by Crosskerry[17])

Training and educational initiatives (RQ3)
► Descriptions of training and educational initiatives that have aided clinicians with suicide risk assessment

Any additional details that pertain to the research questions will be detailed. This step will include an iterative process in which the two data extractors will revise the data-charting form as required.

Collating, summarising and reporting the articles

To effectively present an overview of the information retrieved, and to establish the extent and nature of the literature on this topic, the results of the review will be presented using a PRISMA flow chart to identify the number of articles present at every major stage. Additionally, a tabular synthesis of the distribution of studies geographically (ie, country of origin), distribution of studies by different clinician (eg, nurses, primary care doctors) and patient populations (eg, inpatient, outpatient, community mental health), methodology adopted (ie, study design details) will also be included. This tabular synthesis will focus on metadata of the studies, and not consist of any statistical analysis of the results from the various studies. Using Covidence, we will be able to create a PRISMA flow chart and tabulate the required results. Finally, a qualitative narrative synthesis of the content of included articles will be presented.

The qualitative narrative synthesis will include a focus on three overarching topics, as identified by the three research questions. The first will include a breakdown of the non-patient specific factors affecting the suicide risk assessment process, while the second will report on results of the types of cognitive biases that emerge within the suicide risk assessment process. In order to organise the results within these two research questions, the Situated Clinical Decision-Making (SCDM) framework[29] will be employed. The SCDM framework was initially developed by Gillespie and Peterson (2005) as a means to help novice nurses reflect on the decisions they made within clinical practice, and as an aid in developing specific expertise. The framework balances depth with complexity, and incorporates components from *context*, *foundational knowledge* and *clinical decision-making processes*. For the purposes of the first research question, we will use the three context level components, as follows[30]: (1) microlevel—this level is inclusive of the clinician and patient. Examples can include the importance of therapeutic alliance, moral or ethical issues present, the clinician's experience level relative to their patient assignment, the clinician's personal capacity for communication, the clinician's confidence and the patient complexity; (2) mesolevel—this level is inclusive of organisational factors that may affect a clinician's decision-making, such as unit culture, workload and staffing patterns, availability of resources and communication with the rest of the team; and (3) macrolevel—this final level includes broader societal, governmental and professional related concepts that may affect the process. Results for the second research question will fall within the clinical decision-making processes construct, which focuses on cues, biases and intuitive processes that may impact a clinician's decision-making ability. Finally, results for the third research question will be collated and reported through a narrative approach, summarising education strategies and types of training initiatives found to help improve a clinician's decision-making around suicide risk assessment.

Patient and public involvement

We will include consultation from stakeholder clinicians (ie, an interdisciplinary suicide risk working group within a mental health hospital). Through providing these clinicians with preliminary results of the scoping review, they will be consulted on for suggestions for additional helpful references, and for providing insights that are beyond those found within our thematic analysis. Additionally, we will also consult with a patient advocacy group (ie, the empowerment council within a mental health hospital) to gather the perspective of those with lived experience.

ETHICS AND DISSEMINATION
Consulting and translating knowledge

This protocol presents a scoping review that will contribute to the advancement of the topic of suicide risk assessment, focusing in on an often understudied aspect of clinical decision-making within the risk assessment process. This review will identify gaps in knowledge and research, while also helping to inform best practice. This review will guide the direction of future research on the topic, and aid in improving training and education around this practice. Future research can focus on measuring the impact of each contextual factor on a clinician's assessment of suicide risk. The results from this review can contribute toward developing appropriate qualitative interview

guides or aid in survey development for studying such research questions. With regards to improving training and education, the results of this review can improve clinicians' awareness of the biases that exist within the suicide risk assessment process, helping them improve on more nuanced behaviours of this practice.

Approval from the Research Ethics Board is not required for this review. An integrated knowledge translation approach will be used by engaging knowledge users over the course of the study. Our team includes multiple knowledge users—two psychiatrists, a mental health nurse and a decision-maker in medical education. The team will review results and emerging themes among ourselves, as well as consult with an interdisciplinary suicide risk working group and patient empowerment group within a large mental health hospital. This consultation will collectively help ensure that study findings meet the needs of healthcare professionals and educators. Results will be published in appropriate peer-reviewed journals, as well as be presented at suitable academic conferences. Finally, educational materials will be created to disseminate study findings to appropriate mental health professionals.

REFERENCES

1. WHO. Depression (Fact sheet). 2017 http://www.who.int/mediacentre/factsheets/fs369/en/.
2. Luoma JB, Martin CE, Pearson JL. Contact with mental health and primary care providers before suicide: a review of the evidence. *Am J Psychiatry* 2002;159:909–16.
3. Oquendo MA, Bernanke JA. Suicide risk assessment: tools and challenges. *World Psychiatry* 2017;16:28–9.
4. Perlman C, Neufeld E, Martin L, *et al*. *Suicide risk assessment inventory: A resource guide for Canadian health care organizations*. Toronto, ON: Ontario Hospital Association and Canadian Patient Safety Institute, 2011.
5. Grove WM, Zald DH, Lebow BS, *et al*. Clinical versus mechanical prediction: a meta-analysis. *Psychol Assess* 2000;12:19–30.
6. Franklin JC, Ribeiro JD, Fox KR, *et al*. *Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research*, 2016.
7. Beck AT, Steer RA, Carbin MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clin Psychol Rev* 1988;8:77–100.
8. Posner K, Brent D, Lucas C, *et al*. *Columbia-suicide severity rating scale (C-SSRS)*. New York, NY: Columbia University Medical Center, 2008.
9. Cutcliffe JR, Barker P. The Nurses' Global Assessment of Suicide Risk (NGASR): developing a tool for clinical practice. *J Psychiatr Ment Health Nurs* 2004;11:393–400.
10. Patterson WM, Dohn HH, Bird J, *et al*. Evaluation of suicidal patients: the SAD PERSONS scale. *Psychosomatics* 1983;24:343–9.
11. Wasserman D, Rihmer Z, Rujescu D, *et al*. The European Psychiatric Association (EPA) guidance on suicide treatment and prevention. *Eur Psychiatry* 2012;27:129–41.
12. WHO. *Preventing suicide: a global imperative*: World Health Organization, 2014.
13. NICE. *Self harm (longer term management). NICE Guideline (CG133)*, 2011.
14. Bolton JM, Gunnell D, Turecki G. Suicide risk assessment and intervention in people with mental illness. *BMJ* 2015;351:h4978.
15. Smyth O, McCabe C. Think and think again! Clinical decision making by advanced nurse practitioners in the Emergency Department. *Int Emerg Nurs* 2017;31:72–4.
16. Kahneman D. *Thinking, fast and slow*: Macmillan, 2011.
17. Croskerry P. The importance of cognitive errors in diagnosis and strategies to minimize them. *Acad Med* 2003;78:775–80.
18. Pease JL, Forster JE, Davidson CL, *et al*. How Veterans Health Administration Suicide Prevention Coordinators Assess Suicide Risk. *Clin Psychol Psychother* 2017;24:401–10.
19. Berman NC, Stark A, Cooperman A, *et al*. Effect of patient and therapist factors on suicide risk assessment. *Death Stud* 2015;39:433–41.
20. Eriksen K, Kress VE. *Beyond the DSM story: ethical quandaries, challenges, and best practices*: Sage, 2004.
21. Weiland TJ, Cotter A, Jelinek GA, *et al*. Suicide risk assessment in Australian emergency departments: assessing clinicians' disposition decisions. *Psychiatry J* 2014;2014:1–8.
22. Colquhoun HL, Levac D, O'Brien KK, *et al*. Scoping reviews: time for clarity in definition, methods, and reporting. *J Clin Epidemiol* 2014;67:1291–4.
23. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
24. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5:69.
25. Tricco AC, Lillie E, Zarin W, *et al*. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med* 2018;169:467.
26. Medicine USNLo. Fact Sheet: MEDLINE, PubMed, and PMC (PubMed Central): How are they different? https:// www.nlm.nih.gov/pubs/factsheets/dif_med_pub.html.
27. Whitlock J, Minton R, Babington P, *et al*. *The relationship between non-suicidal self-injury and suicide*. Ithaca, NY: The Information Brief Series, Cornell Research Program on Self-Injury and Recovery Cornell University, 2015.
28. Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics* 1977;33:159–74.
29. Gillespie M, Peterson BL. Helping novice nurses make effective clinical decisions: the situated clinical decision-making framework. *Nurs Educ Perspect* 2009;30:164–70.
30. Gillespie M. Using the situated clinical decision-making framework to guide analysis of nurses' clinical decision-making. *Nurse Educ Pract* 2010;10:333–40.