



Towards development of guidelines for harnessing implementation science for suicide prevention: an international Delphi expert consensus study

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ABSTRACT

Objectives Suicide research and prevention are complex. Many practical, methodological and ethical challenges must be overcome to implement effective suicide prevention interventions. Implementation science can offer insights into what works, why and in what context. Yet, there are limited real-world examples of the application of implementation science in suicide prevention. This study aimed to identify approaches to employ principles of implementation science to tackle important challenges in suicide prevention.

Methods A questionnaire about promoting implementation science for suicide prevention was developed through thematic analysis of stakeholder narratives. Statements were categorised into six domains: research priorities, practical considerations, approach to intervention design and delivery, lived experience engagement, dissemination and the way forward. The questionnaire (n=52 statements—round 1; n=44 statements—round 2; n=9 statements—round 3) was administered electronically to a panel (n=62—round 1, n=48—round 2; n=45—round 3) of international experts (suicide researchers, leaders, project team members, lived experience advocates). Statements were rated on a Likert scale based on an understanding of importance and priority of each item. Statements endorsed by at least 85% of the panel would be included in the final guidelines.

Results Eighty-two of the 90 statements were endorsed. Recommendations included broadening research inquiries to understand overall programme impact; accounting for resources in the translation of evidence into practice;

WHAT IS KNOWN ON THIS TOPIC

⇒ While implementation science provides a framework to understand what works, why, and in which contexts, its application in examining complex suicide prevention challenges remains limited.

WHAT THIS STUDY ADDS

⇒ This study provides consensus-based actionable insights for researchers and practitioners to enhance evidence translation and programme effectiveness in suicide prevention.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Policymakers and practitioners can use these insights to inform programmes, address gaps in intervention design and delivery, foster interdisciplinary collaboration and enhance global suicide prevention efforts.

embedding implementation science in intervention delivery and design; meaningfully engaging lived experience; considering channels for dissemination of implementation-related findings and focusing on next steps needed to routinely harness the strengths of implementation science in suicide prevention research, practice and training.

Conclusion An interdisciplinary panel of suicide prevention experts reached a consensus on optimal

strategies for using implementation science to enhance the effectiveness of policies and programmes aimed at reducing suicide.

INTRODUCTION

Suicide is a complex phenomenon¹ and a leading cause of death globally.² Recent research has contributed to an improved understanding of suicidal behaviour and effective interventions for preventing suicide.³ At the policy level, key factors contributing to the advance in knowledge and action have been political will, advocacy and research funding, which have collectively made the prevention of suicidal behaviour a global health priority.^{4,5} There is now a suite of interventions, although with mixed evidence,⁶ which aim to address multiple risk factors for suicide.^{7,8} Multifaceted interventions at the universal, targeted and selected levels^{9,10} are needed to address the aetiology of suicidal behaviour.^{11,12} A public health approach to suicide prevention involving a coordinated and multisectoral response that results in population-level effects is recommended.¹³

Despite global efforts, we are not on track to reach the UN sustainable development goals to reduce the suicide mortality rate by a third by 2030.¹⁴ Reducing the population burden of suicidal behaviour continues to pose key challenges for public policy and health services, such as: (1) methodological issues and knowledge gaps in establishing the effectiveness of interventions; (2) insufficient attention to addressing structural inequities and narrow focus of programmes; (3) scarcity of translational research or evidence informing policy and practice and (4) inadequate collaboration between researchers, policymakers, practitioners and lived experience advocates.^{7,15–17}

For both research and national suicide prevention policies, effective *implementation* is a key. This involves ‘efforts designed to get evidence-based programmes or practices of known dimensions into use via effective change strategies’.¹⁸ The recent release of the WHO *Live Life: Implementation Guide for Suicide Prevention in Countries*¹⁴ has emphasised the need for action. However, successful implementation depends on key factors: the ongoing investment in knowledge, skills, attitudes and capacity of stakeholders; systemic beliefs and attitudes; leadership and collaboration; resources and the larger sociopolitical environment.¹⁹ Barriers related to the intervention setting, individual needs and resources^{20,21} are important when trying to scale up suicide prevention interventions. Importantly, low and middle-income countries (LMIC) face distinct challenges such as limited suicide data, resource shortages, stigma and low awareness²²; highlighting the need for a tailored approach to prevention in these contexts.

Implementation science has been defined as ‘the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services’.²³ It has

grown in response to an acknowledgement that effective programmes stemming from clinical trials do not often impact services or practices.²⁴ Both public health and implementation science share a systems-focused approach.²⁵ Acknowledgement of the relevance of implementation science within suicide prevention is recent.²⁶ The current effort is to understand how the implementation science approaches can be applied to improve the outcomes of suicide prevention efforts by utilising strategies for programme delivery, identifying factors that influence delivery and evaluating how the implementation strategies impact intervention delivery and fidelity to original interventions.^{27,28} Implementation science could help address gaps in current suicide prevention efforts, but its application can be resource intensive and requires specific expertise^{29,30} and therefore is rarely used in suicide prevention.³¹ Accordingly, guidelines for the application of implementation science within suicide prevention do not exist.

In support of the uptake of the merits of implementation science, we conducted a Delphi study. The Delphi Expert Consensus method has been used widely to address a lack of agreement, incomplete knowledge, uncertainty or lack of evidence^{32–34} and has been broadly applied in the development of consensus-based guidelines in suicide prevention.^{35–38} This study aimed to identify approaches to employ principles of implementation science to tackle important challenges in suicide prevention, acceptable to all types of stakeholders working on suicide prevention. Approaches endorsed as statements by expert stakeholders would then be used to formulate the final consensus-based guidelines.

This paper outlines the process of conducting the study; presents results in the form of statements and consensus ratings; discusses recommendations, and the next steps involved in guideline development.

MATERIALS AND METHODS

We used the Delphi expert consensus method to reach consensus among a diverse group of stakeholders on how best to use implementation science for suicide prevention. The process of conducting the study has been reported in accordance with the ACCurate CONsensus Reporting Document (ACCORD) checklist for reporting of consensus studies³⁹ (online supplemental material 1).

Background

Systematic literature review (April 2021–December 2022)

The process began with a systematic literature review, which explored the use of implementation science frameworks in complex suicide prevention interventions implemented in countries across the globe between 1990 and 2022.³¹ The review revealed an important gap—a lack of consistent and comprehensive use of implementation science frameworks. Leaders of complex suicide prevention interventions were identified from the publications included in the review.

Qualitative study (August–November 2022)

Leaders of complex suicide prevention interventions helped identify other stakeholders—project team members and lived experience advocates through a snowballing recruitment process. Sixteen stakeholders (nine leaders, five project team members and two lived experience advocates—AS, CC, EA, FS, JG, KM, KKi, LV, NJ, RG, UH, YM) from six high-income countries (HIC) and one LMIC were interviewed to explore their experiences of implementing complex suicide prevention interventions from different vantage points. Interviews yielded rich data on challenges, lessons learnt and what is needed for suicide prevention.⁴⁰

The Delphi process

Preparations—questionnaire development, review process and pilot (January–May 2023)

Thematic analysis⁴¹ was used to analyse qualitative data from the participant interviews. Specific action statements pertaining to experiences of lessons learnt and the way forward were extracted and organised into themes. An inductive process was followed to iteratively shape themes into items or statements. This was done through continuous discussions within the core team (principal investigator and three supervisors—SK, KK, VR, GA) and led to the development of the first draft of the questionnaire with 106 statements across six domains.

The draft questionnaire was shared with independent reviewers with global experience—a suicide research expert with implementation experience (LR), an implementation science expert (JF), and a lived experience advocate (HP). The objective of the review was to assess the feasibility, comprehensibility (clarity and accessibility), applicability, representativeness (whether statements mirrored stakeholder experiences) of the statements. Feedback received from the reviewers focused on several issues such as comprehensibility of statements. Furthermore, conceptual clarity related to suicide research and prevention as well as terms and definitions within implementation science were sought. For example, terms and definitions related to lived experience representation were amended to improve clarity. Other feedback was related to the methodology for conducting the study (inclusion of specific research questions, a scale for rating items) and incentives for the panel of experts.

To ensure ease of access and conceptual clarity, all statements were revised and rephrased in plain language. Repetitive statements were removed, and the number of statements was reduced by half. The core team decided that information about what to expect from the study, more examples for each section, and an introductory video on implementation science would be included prior to the beginning of round 1.

This revised questionnaire was further pilot-tested by two additional, independent suicide research experts with implementation experience (JH, SM). They were also asked to complete a feedback form at the end of the questionnaire, reporting their experience of

participating in the study based on—accessibility, clarity, relevance, representativeness of their experiences, time taken to complete the questionnaire. The final version of the questionnaire comprised 52 statements across six domains: (1) suicide prevention research priorities (ie, how implementation science can be applied to enhance the effectiveness of suicide prevention research); (2) practical considerations in informing and promoting effective implementation (ie, time, capacity, funding, infrastructure needed); (3) approach to intervention design and delivery (ie, strategies for designing and delivering interventions prioritising implementation issues); (4) lived experience engagement (ie, meaningful engagement of lived experience in implementation); (5) dissemination for utilisation of implementation findings; (6) the way forward in harnessing implementation science for suicide prevention (ie, general approach, research and practice, training and capacity building).

Recruitment process and Delphi consensus ratings (July–November 2023)

Panel of experts

For this study, we aimed to achieve a global representation within the panel of experts. *Experts* were defined as one or more of the following categories:

- Leaders: principal and chief investigators, project directors, senior research fellows, individuals who have had experience of leading suicide prevention interventions.
- Project team members: project managers, individuals who have had the responsibility of supporting the delivery of interventions as per protocol.
- Lived experience advocates/leaders^{42 43}: a person with lived experience of suicide was defined as someone who has experienced suicidal thoughts, survived a suicide attempt, supported a loved one through suicidal crisis and/or been bereaved by suicide. For this study, lived experience leadership included using one's lived experience for (1) informal and formal activity that promote the values and goals of lived experience; (2) influencing community awareness, organisational culture, policy and politics and (3) creating spaces, pathways and inclusion with others, prompting and supporting change.
- Other suicide research experts: people who have made significant contributions in suicide research for more than 10 years and authored/coauthored publications on suicide research.

Recruitment process

A list of potential participants was prepared, comprising the four expert stakeholder categories eligible for the study. Individuals were identified through different approaches—(1) stakeholders involved in the implementation of complex suicide prevention interventions identified through the systematic review³¹; (2) individuals who have worked on seminal international reports on suicide; (3) invitations to leaders of special interest groups (SIGs)

on *National Suicide Prevention Strategy and Practice* as well as the *Lived Experience* group of the *International Association for Suicide Prevention*; (4) individuals within professional networks of lead investigators and (5) identification of additional potential participants by the participants identified in the four preceding groups (snowballing recruitment). The participant list was carefully considered to ensure representativeness across different stakeholder categories as well as reach from countries around the world and across income groups.

A total of 221 invitations (156 general invitations, 65 through SIGs) were sent to potential participants from 54 countries via email. Three email reminders were disseminated with an increased frequency around the closing date of each survey round. As an incentive to participate, participants could choose between a gift card, an invitation to contribute to the manuscript as an author or acknowledgement on the publication at the end of the three rounds.

Data collection and analysis

Survey data were collected and managed using REDCap electronic data capture tools hosted at Griffith University.^{44 45} The three survey rounds were conducted from 21 August to 5 November 2023. Each round was approximately 17 days, followed by 10 days of analysis and report generation in preparation for the next round. Demographic details such as age, gender, country of origin and occupation, professional role were gathered. Participants could choose to respond to the survey anonymously or provide their names or initials. The expert panel was invited to rate statements based on their informed opinion of the importance and priority of each item. A five-point Likert scale was used, ranging from—*very important*, *important*, *can't say/undecided*, *low importance*, to *not at all important*. Experts were given the opportunity to provide feedback and suggest additional items at the end of each section during the first survey round. Stopping rules and consensus threshold considerations were determined *a priori* for this study and have been reported according to the methodologic criteria for reporting Delphi studies.⁴⁶ Due to considerations of time and resources involved, the core research team decided that the study would be stopped at three rounds, irrespective of the consensus threshold. The consensus threshold for statements was also determined at 85%. Hence, statements rated *very important* or *important* by 85% (and above) of the panel were accepted. Statements rated *very important* and *important* by 80%–84.9% of the panel were reconsidered and rerated in rounds 2 and 3. Statements rated as *very important* and *important* by less than 79.9% were discarded. Feedback after each round has been found to influence individual responses and the achievement of consensus.⁴⁷ Therefore, experts were provided a detailed individualised report (online supplemental file 2) with a summary of their responses relative to group ratings, to consider and adjust their responses in the subsequent rounds. The core team (SK, KK, VR,

GA) did not participate in the consensus rating process and held no voting rights.

Qualitative responses after the first round were reviewed by the lead investigators who determined whether there were any overlaps with the existing statements. Experts' comments and thoughts were first listed verbatim on an Excel sheet and then formulated into statements for each section. These were considered as new statements to be rated in round 2. No new statements were added in round 3 (see figure 1). Qualitative feedback unrelated to additional items was also analysed to gain insights into participants' perspectives and context.

At the end of each round, questionnaire responses were analysed for each statement, by obtaining the percentage of statements rated as *very important* and *important* by participants. Statements were accepted, rejected or rerated based on the criteria noted above.

RESULTS

Expert panel members

Out of the 221 invitations sent to potential participants internationally, 62 experts participated in the first round (response rate—28%). Of these, 59 completed the questionnaire; the remaining three questionnaires were completed partially. Incomplete records were not discarded from the study since responses to each item were analysed. Participation decreased in round 2, with 48 experts (retention rate—77%); but remained stable in round 3 with 45 experts (retention rate—93%).

The gender distribution (table 1) remained stable across the three rounds, with 61%–64% of the sample identifying as women (and 35%–39% as men). A normal distribution of participants across age groups was observed, which remained consistent across the three rounds. Most panel members were between 40 and 49 years of age (29%–33%), followed by 50–59 years (26%–27%) and 30–39 years (21%–22%). The smallest groups were those aged 18–29 (3%–4%) and above 70 years (6%–7%).

In terms of country of residence/work, in round 1, panel members represented 27 countries including HICs such as Australia (n=12), USA (n=9), Poland (n=5) and LMICs such as India (n=3), Ghana (n=1), Philippines (n=1). In rounds 2 and 3, panel members represented 23 countries. Of the 27 countries represented, there were 20 HICs, three upper middle-income countries and four LMICs.

Among the participants, in the first round—44 (71%) identified with a single stakeholder category, 11 (18%) with two stakeholder categories, five (8%) with three stakeholder categories and two (3%) with all four stakeholder categories. Counting each stakeholder category reported, 45 (72%) participants identified as leaders, 18 (29%) as project team members, eight (13%) as lived experience advocates and 11 (18%) as suicide research experts. There was little change in these proportions in rounds 2 and

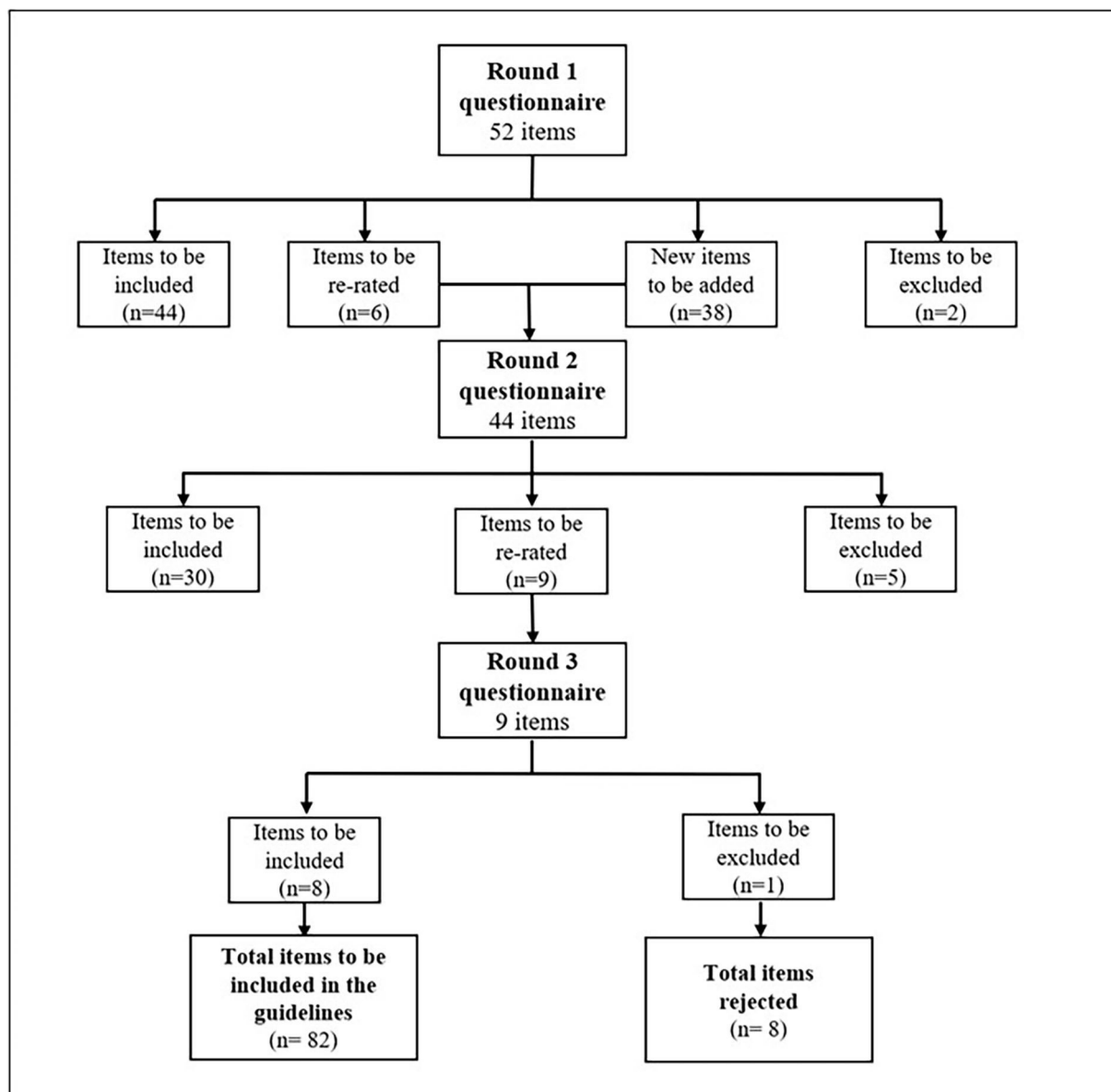


Figure 1 Flow diagram of statement inclusion in each round.

3. Importantly, 45 of the 62 participants in round 1 reported having a variety of active roles in the implementation of suicide prevention activities, including programme development and management, training, providing clinical services, implementing specific activities at scale (media guidelines, suicide awareness campaigns, means restriction, training and capacity-building of community stakeholders) and implementing national suicide prevention strategies.

Ratings of the statements

The total number of statements endorsed, rejected and rerated in each round is presented in [figure 1](#). In round 1, 52 statements were rated by participants. In this round, participants also provided 67 feedback comments across the six sections of the questionnaire. Of the 67 feedback comments provided in round 1, 48 were used to generate 38 additional

statements for round 2 (the remaining 19 comments were justifications for responses or feedback on the study itself). Out of the 90 statements (see [table 2](#)) rated by experts, 82 statements were endorsed (by $\geq 85\%$ of participants or more) to be included in the final guidelines for harnessing implementation science for suicide prevention.

Statements with unanimous consensus

Three statements reached a unanimous consensus (endorsed by 100% of the panel; see online supplemental material 3): understanding the applicability, reach, sustainability and cost-effectiveness of interventions (1.1); ensuring clarity and transparency in what is being monitored and measured (1.12); and designing interventions informed by context and community needs (3.1).

Table 1 Participant characteristics

Characteristics	Round 1	Round 2	Round 3
Number of complete records	59	48	45
Number of incomplete records	3	–	–
Gender			
Men	24 (39%)	18 (37%)	16 (35%)
Women	38 (61%)	30 (62%)	29 (64%)
Age groups			
18–29	2 (3%)	2 (4%)	2 (4%)
30–39	14 (22%)	10 (21%)	10 (22%)
40–49	18 (29%)	16 (33%)	15 (33%)
50–59	16 (26%)	13 (27%)	12 (27%)
60–69	8 (13%)	4 (8%)	3 (7%)
Above 70 years	4 (6%)	3 (6%)	3 (7%)
Regional classification: country of origin			
	29 countries represented	24 countries represented	24 countries represented
Oceania			
Australia (HIC)	7	6	5
Eastern and South-Eastern Asia			
China (UMIC)	2	2	1
Hong Kong (HIC)	1	1	1
Japan (HIC)	1	1	1
Philippines (LMIC)	1	1	1
Republic of Korea (HIC)	1	1	1
Central and Southern Asia			
India (LMIC)	4	2	2
Africa and West Asia			
Ghana (LMIC)	1	1	1
Iran (LMIC)	1	1	1
Jordan (UMIC)	1	–	–
Palestine (UMIC)	2	1	1
South Africa (UMIC)	1	1	1
Europe			
Austria (HIC)	2	2	2
Czechia (HIC)	1	1	1
Denmark (HIC)	1	1	1
Estonia (HIC)	1	1	1
Finland (HIC)	1	–	–
Germany (HIC)	1	–	–
Netherlands (HIC)	1	–	–
Poland (HIC)	5	4	4
Portugal (HIC)	1	1	1
Slovenia (HIC)	1	1	1
United Kingdom (HIC)	7	5	4
Ukraine (LMIC)	1	1	1
North America			
Canada (HIC)	4	4	4

Continued

Table 1 Continued

Characteristics	Round 1	Round 2	Round 3
United States of America (HIC)	7	6	6
Latin America and the Caribbean			
Jamaica (UMIC)	1	1	1
Trinidad and Tobago (HIC)	3	2	2
Uruguay (HIC)	1	–	–
Regional classification: country of residence/work	27 countries represented	23 countries represented	23 countries represented
Oceania			
Australia (HIC)	12	11	9
Eastern and South Eastern Asia			
China (UMIC)	1	1	1
Hong Kong (HIC)	1	1	1
Japan (HIC)	1	1	1
Philippines (LMIC)	1	1	1
Republic of Korea (HIC)	1	1	1
Central and Southern Asia			
India (LMIC)	3	1	1
Africa and Western Asia			
Ghana (LMIC)	1	1	1
Iran (LMIC)	1	1	1
Israel (HIC)	1	1	1
Palestine (UMIC)	1	–	–
Europe			
Austria (HIC)	2	2	2
Czechia (HIC)	1	1	1
Estonia (HIC)	1	1	1
Germany (HIC)	1	–	–
Ireland (HIC)	1	–	–
Netherlands (HIC)	2	1	1
Norway (HIC)	2	2	2
Poland (HIC)	5	4	4
Portugal (HIC)	1	1	1
Slovenia (HIC)	1	1	1
United Kingdom (HIC)	3	2	2
North America			
Canada (HIC)	4	3	3
United States of America (HIC)	9	7	6
Latin America and the Caribbean			
Jamaica (UMIC)	1	1	1
Trinidad and Tobago (HIC)	3	2	2
Uruguay (HIC)	1	–	–
Stakeholder category			
<i>Experts assuming a single role</i>			
A. Leaders	29 (47%)	20 (42%)	20 (44%)
B. Project team members	7 (11%)	6 (12.5%)	5 (11.1%)

Continued

Table 1 Continued

Characteristics	Round 1	Round 2	Round 3
C. Lived experience advocates	3 (5%)	3 (6%)	3 (7%)
D. Suicide research experts	5 (8%)	4 (8%)	3 (7%)
Total	44 (71%)	33 (69%)	31 (69%)
<i>Experts assuming two roles</i>			
A+B	4 (6%)	4 (8%)	4 (9%)
A+C	1 (2%)	–	–
A+D	4 (6%)	4 (8%)	4 (9%)
B+D	1 (2%)	1 (2%)	1 (2%)
C+D	1 (2%)	1 (2%)	1 (2%)
Total	11 (18%)	10 (21%)	10 (22%)
<i>Experts assuming three roles</i>			
A+B+D	4 (6%)	4 (8%)	3 (7%)
A+C+D	1 (2%)	–	–
Total	5 (8%)	4 (8%)	3 (7%)
<i>Experts assuming all four roles</i>			
A+B+C+D	2 (3%)	1 (2%)	1 (2%)
<i>Percentage of each category reported</i>			
A. Leaders	45 (72%)	33 (69%)	32 (71%)
B. Project team members	18 (29%)	16 (33%)	14 (31%)
C. Lived experience advocates	8 (13%)	5 (10%)	5 (11%)
D. Suicide research experts	11 (18%)	15 (31%)	13 (29%)

HIC, High Income Country; LMIC, Low and Middle Income Country; UMIC, Upper Middle Income Country.

Overview of consensus statements

Consensus levels on various statements across six domains are summarised (see online supplemental material 3).

Domain 1: suicide prevention research priorities

This domain explored the nature of questions raised in suicide prevention research and evaluation. Fourteen statements regarding priorities in suicide prevention research reached a consensus in this domain (online supplemental material 3). These included: adoption of implementation science approaches to understand delivery and effectiveness of interventions (1.2); capturing barriers, facilitators and key lessons (1.5); defining activities used to deliver the intervention (1.3) (95%–98% level of consensus). Other statements including examining the linkage between resources and implementation strategies (1.13) and prioritising evidence generation on activities and strategies that work (1.10) reached consensus (85%–94%).

Domain 2: practical considerations in informing and promoting effective implementation

This domain included statements on practical considerations in systematically generating and utilising evidence around what works, for whom, why, how and in what contexts. Thirteen statements were endorsed. Statements that reached a higher level of consensus (95%–97%)

were related to allocating adequate resources to assess unintended effects of an intervention (2.10); and developing a strategic funding plan to ensure responsiveness to community needs (2.2). Other statements regarding adequate time for delivery of interventions (2.9); building capacity to engage with implementation-related questions (2.6); onboarding community members as partners (2.4) reached consensus (90%–94%).

Domain 3: approach to intervention design and delivery

This domain included statements regarding how principles of implementation science can be embedded in intervention design and delivery. Seventeen statements were endorsed including defining roles and responsibilities for ethical transparency (3.17); ensuring a buy-in at all levels of an organisation/community (3.15); prioritising reach of the intervention (3.4) by 86%–89% of the panel. Statements receiving a higher level of endorsement (95%–98%) included understanding the context of mental healthcare delivery (3.9) and prioritising quality and feasibility of intervention delivery based on the existing resources (3.3).

Domain 4: lived experience engagement

This domain included statements regarding how to better engage lived experience in addressing implementation challenges in suicide prevention. Nine statements were

Table 2 Questionnaire sections and list of statements

Section name	Subsections	Round 1 statements	Round 2 new statements	Total statements rated	Total statements rejected	Total statements accepted
Suicide prevention research priorities		8	6	14	0	14
Practical considerations in informing and promoting effective implementation		8	6	14	1	13
Approach to intervention design and delivery		8	11	19	2	17
Lived experience engagement		7	5	12	3	9
Dissemination for utilisation of implementation findings		4	5	9	0	9
The way forward in harnessing implementation science for suicide prevention	General approach	7	2	9	0	9
	Research and practice	5	3	8	1	7
	Training and capacity building	5		5	1	4
		52	38	90 statements	8 statements	82 statements

endorsed. Most statements were endorsed by 86%–90% of the panel. This included allocating resources for lived experience engagement (4.1); ensuring clarity and transparency (4.6); expanding ways in which people with lived experience can engage in research and implementation (4.9). Statements that received a higher level of consensus (97%–98%) included working towards removing structural barriers (4.5) and developing strategies to support people with lived experience to participate and be heard (4.3).

Domain 5: dissemination

This domain included statements on the dissemination of implementation findings with wider audiences and stakeholders. Nine statements were endorsed in this domain. Most statements received a high level of endorsement in this domain (94%–97%) such as adopting a systematic approach to dissemination (5.1); systematically documenting best practices (5.5); understand key stakeholder groups (5.2) and using diverse channels with a wide reach (5.3).

Domain 6: the way forward

This domain focused on the next steps involved in harnessing implementation science for suicide prevention. Twenty statements were endorsed in this domain. Statements that were endorsed by 90%–98% of the panel included making programmes and policies more sustainable (6.1.6); facilitating partnerships and collaborations

(6.1.5); asking relevant stakeholders regarding what is needed (6.2.6); enhancing methods for understanding linkages between implementation and overall impact (6.2.2); building capacity in implementation science at all levels (6.3.1).

Areas of non-agreement

Some statements that did not achieve the endorsement threshold in round 1 and needed to be rerated in round 2, related to identifying/adapting elements of an intervention (3.8), integrating capacity building opportunities in implementation science with opportunities for professional development (6.3.3). New statements that were rerated in round 3 included prioritising training in understanding which outcomes should be assessed (1.14); defining roles and responsibilities for ethical transparency (3.17) and creating a knowledge hub to keep updated with advancements in implementation science (6.3.4). A few of these statements rerated in rounds 2 and 3 were eventually rejected by the panel of participants.

Across the three rounds, eight statements were rejected by the panel of participants. These statements included shifting focus from engaging stakeholders other than general physicians (68%, domain 2); understanding the lived experience is a matter of social justice (79%; domain 4); working to shift the culture of what types of knowledge are valued (79%, domain 4); creation of SIGs

to promote use of implementation science (77%, domain 6).

Qualitative feedback

Participants provided feedback on the statements, addressing their importance and feasibility for real-world implementation. They also shared insights into various domains, with a particular focus on lived experience engagement in suicide prevention.

At the end of round three, statements endorsed (n=82) by the panel of experts were grouped under the aforementioned domains. Minor changes in the phrasing of statements were made by the lead investigator (SK). For example—the original statement—‘systematically document best practices—what worked as well as what did not work’ was changed to ‘systematically document best practices, what worked, and what did not work’. Individualised reports for the final round along with a list of endorsed statements were sent to the participants.

DISCUSSION

This Delphi expert consensus study drew on expert opinion to arrive at statements on harnessing implementation science for suicide prevention. This is the first time a Delphi study has been conducted to explore approaches for promoting the use of implementation science for suicide prevention, endorsed by international experts. A rigorous process involving a systematic literature review and qualitative interviews with stakeholders, was followed to arrive at a list of statements which were rated by experts. The statements offer concrete recommendations about how implementation science can be applied to overcome the challenges of translating

evidence into effective action. This study is an important first step towards arriving at consensus-based guidelines, which will offer specific recommendations regarding what stakeholders can do to address implementation-related challenges in suicide prevention.

Guidelines are a critical tool in clinical practice, public health and health system decision-making to enhance quality and impact of care. Therefore, guideline development involves multiple actions such as using systematic reviews and expert judgement, assessment of benefits and harms, external validation by a board and assessments of applicability.^{48–50} Despite the rigour involved in this study, we recognise that additional steps are needed in formulating guidelines from these endorsed statements. We know that guidelines do not necessarily offer implementation advice to users and that specific implementation tools are needed.^{51 52} Moreover, further steps are needed to make these guidelines more actionable by specifying what needs to be implemented, who is targeted.⁵³ We aim to follow existing guidance on developing guidelines and making them actionable, as we progress to the next phase.

Key recommendations

Statements endorsed in the study are multifaceted, and serve a variety of objectives. These reflect a consensus of experts within the field regarding what is needed to address implementation-related challenges; offer tangible information and best practice guidance on how challenges can be potentially addressed and propose future pathways to bring these aspirational guidelines to fruition (see figure 2). The first domain on suicide prevention research priorities expands the nature of

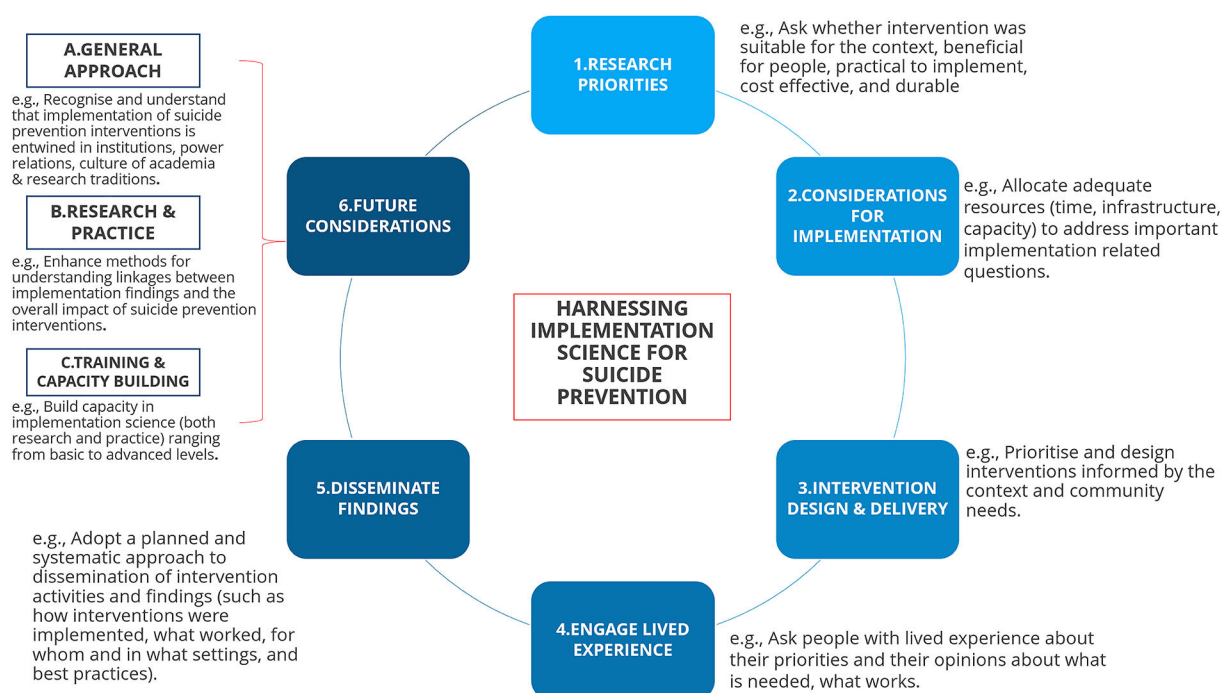


Figure 2 Domains and examples of statements.

questions we ask in research to include consideration of the overall impact of programmes and interventions. Statements in this domain emphasise the importance of using implementation science in suicide prevention research, considering the local context and ensuring transparency in monitoring and evaluation. The second domain considers the time, funding, infrastructure and capacity needed to translate evidence into action. Statements highlight a broad agreement on the practical considerations necessary for effective implementation, including resource allocation, community engagement and equity considerations. The third domain urges stakeholders to explore ways to embed implementation science approaches in intervention design and delivery. This domain highlights the need for contextually informed interventions, with an emphasis on collaboration, flexibility, ongoing monitoring of quality and sustainability. Therefore, the first three domains recommend a more comprehensive approach to understand the external validity of interventions^{54 55} and expanding the meaning of evidence⁵⁶ in suicide prevention research.

The fourth domain considers methods for overcoming the challenge of meaningfully integrating lived experience as part of the implementation of research findings. Statements in this domain highlight the importance of intentional, ethical and inclusive engagement of lived experience at all stages of implementation. The emphasis is on providing adequate support, addressing structural barriers and creating an environment of trust to ensure meaningful contributions. Priorities and decisions in research and practice are rarely informed by those who use and apply research.⁵⁷ Meaningful engagement with people with lived experience in design⁵⁸ and delivery⁵⁹ is recommended.

Domain 5 considers channels for disseminating implementation-related findings. The importance of intentional and diverse dissemination strategies to ensure the effective utilisation of implementation findings is recommended. This includes tailoring information for different audiences, prioritising local evidence and addressing barriers to dissemination, to promote equity, access, and achieve a large-scale impact of implementation efforts.

Finally, domain 6 focuses on the next steps needed to routinely harness the strengths of implementation science in suicide prevention-related research, practice and training. Overall, statements in this domain focus on promoting collaboration, sustainability and inclusivity, emphasising the need for continuous learning and capacity building. Some of the strategies outlined in this domain have also been emphasised as important opportunities for advancing the field of implementation science.^{29 30 56}

Examining panel members' perspectives

Overall, very few statements were reconsidered or even rejected from domain 1 (research priorities), domain 2 (practical considerations) and domain 5 (dissemination)

across the three rounds. This may be because suicide prevention research and practice-related priorities are well considered and discussed,^{16 60 61} facilitating a more confident affirmation of these statements. On the other hand, a spread of responses was received for domains 3 (design and delivery), 4 (lived experience engagement) and 6 (the way forward); reflecting the ongoing debate and deliberation surrounding design complexities^{5 62 63} and challenges related to lived experience engagement within the field.^{57 64} Importantly, there was large variability in responses related to lived experience engagement both within and between expert groups reflective of diverse positions on this issue. One end of the spectrum was characterised by a strong resistance to lived experience engagement, considering it stigmatising and a 'fad'. Another group of responses reflected cautious openness, acknowledging the importance of the idea but deeming such engagement as inherently risky. Some participants expressed a willingness to engage people with lived experience but recommended limiting this engagement to select activities. Other respondents were willing to engage but grappled with the practicalities of engagement. At the other end of the spectrum were participants who had implemented pathways for meaningful lived experience engagement and reflected on improving the quality of this engagement.

The inclusion of lived experience in service delivery, research, and policy development within healthcare has been shown to enhance quality, acceptability, and consumer-focused research outcomes.^{65–67} In suicide prevention, incorporating lived experience has been associated with benefits such as increased feelings of being heard, greater trust in research,^{67 68} and enhanced knowledge about suicide prevention.⁶⁹ While generally stakeholder engagement is widely recognised as critical to successful implementation of suicide prevention programmes,¹⁴ it is also acknowledged that this is not straightforward.²⁹ In suicide prevention, challenges related to role clarity, identity and support needs, have been highlighted in effectively engaging individuals with lived experience.^{59 70}

Studies have explored specific needs such as training, care, professional support networks⁷¹ and managing expectations to support a lived experience workforce in this sector.¹⁷ While there has been growing momentum towards incorporating lived experience perspectives into programme and intervention development, until recently, limited guidance existed on how to achieve this effectively. The rapid review on lived experience involvement in intervention development⁵⁸ and guidelines on active involvement in suicide research⁷² now provide valuable direction for fostering meaningful engagement.

Disagreements about the statements in domain six (the way forward) were related to the merit and utility of SIGs, integration of capacity-building opportunities in implementation science, increased focus on primary prevention, and creation of a knowledge hub. The range of responses in this domain perhaps reflects the context in

which the respondents work and the potential influence of professional beliefs, practices and experiences.

The expert panel was enthusiastic in their feedback for the first round of the study. The range of thoughts and opinions provided helped us develop a new set of statements that were included in round 2. Concerns about the feasibility of some of these statements reflected the panel's experience and practical knowledge.

This feedback also included comments about the conduct of the study and the state of the field, and at times noting that statements seemed important and challenging to disagree with. Multiple interpretations arise from this feedback. First, the perspective that emerged from the interviews conducted prior to the Delphi study⁴⁰ aligned with the anticipated significance of implementation science in suicide prevention. Second, a high level of agreement could be attributed to the rigorous review process before the study commenced, incorporating diverse stakeholder perspectives. Third, the novelty of the work and breakdown of guidelines into actionable items may have led participants to perceive all statements as important.

Importantly, efforts to mitigate bias included diverse participant recruitment, facilitating open-ended feedback and establishing a high consensus threshold. Despite high consensus, some disagreements existed. Caution was exercised during questionnaire development to avoid influencing the panel. Although statements were presynthesised by the research team, these statements reflected the field's current state and necessary actions to be undertaken. Thus, using negatively worded or opposing statements (as suggested by some panel members) or mitigation of bias by negation⁷³ may not have been possible.

Implications

Implementation science is at a sufficiently advanced state with an increase in a variety of theories, models and frameworks. In a recent reflective exercise,³⁰ scholars considered any potential challenges related to the current state of the field. A few of these challenges included inherent complexities in the existing approaches, which are poorly specified, unvalidated and seemingly useless; and inadequate acknowledgement of the impact of structural factors critical to population health.³⁰ These challenges contribute to the slow accumulation of scientific knowledge, which impedes the advancement of implementation science as a field.²⁹ Analogous to this issue, new developments in suicide research are infrequently translated into practice; and thereby rarely used to save people's lives and/or implemented at scale.¹⁵ Nascent understanding of implementation science in suicide prevention can affect its prioritisation in funding, leading to inadequate investment in addressing implementation challenges. This can also impede the development of education and training initiatives with a focus on understanding evidence translation. Knowledge translation and uptake could take the form of changes in government

policy, implementation of national suicide prevention strategies and quality programmes that benefit people at risk.^{5 31} The intersection of implementation science and suicide prevention can be mutually advantageous, addressing gaps related to evidence-practice and quality care within suicide prevention. This collaboration can also contribute to the broader advancement of the field of implementation science, enhancing its applicability across diverse fields. Therefore, the synergy between these two fields holds promise for more effective and practical approaches to suicide prevention, bridging the divide between research findings and their real-world implementation. Furthermore, there are examples of the application of implementation frameworks such as the Consolidated Framework for Implementation Research (CFIR),⁷⁴ Reach Effectiveness-Adoption Implementation Maintenance (RE-AIM) framework⁷⁵ to understand implementation-related barriers and facilitators in suicide prevention.^{20 21 76} Examples such as these can provide valuable guidance on how frameworks can be used to examine real-world challenges in evidence translation.

An important use of implementation science is to fill the information gap that occurs between research and practice.⁷⁷ Typically, guidelines provide tangible recommendations to bridge the gap between research and practice. Interestingly, guideline development has narrowly focused on clinical and (rarely) public health practices. Yet, guideline development is needed to accelerate evidence-practice translation.⁵⁵ The statements endorsed in the study have the potential to develop into guidelines offering tangible recommendations informing the conduct of research and practice to achieve specific goals, thereby encouraging a paradigm shift in how suicide prevention and research is conceived and conducted.

LIMITATIONS

The study had several limitations. The Delphi method relies on subjective judgement of experts and consensus may not reflect the diversity of opinions within broader stakeholder groups. Despite a rigorous recruitment strategy, there was an overrepresentation from HICs (especially from Australia), only 62 of the 221 invited individuals participated, and only 45 of the 62 participants completed all three rounds of the survey. The low response rate may have impacted the breadth of perspectives captured, potentially influencing the robustness of the consensus. There was limited representation of lived experience perspectives on the panel.

Allowing participants to provide comments for round 2 could have yielded different results. While most participants completed the three rounds, retention challenges were encountered due to factors, such as a limited study period, external work pressures and an inability to extend deadlines. We acknowledge that the way statements were formulated may have impacted results, limiting the scope of results. The online nature of this consultation perhaps

contributed to this issue, with no opportunity to have a general discussion on the domains in consideration. Acceptability and feasibility of implementing these guidelines are yet to be explored.

CONCLUSION

This Delphi study brought together experts from diverse and interdisciplinary professional backgrounds, lived experience and contexts, fostering agreement on actionable measures to advance implementation research, knowledge and practice in suicide prevention. The expert panel actively engaged in a consultation, tapping into the wisdom of the group to generate strategies and pathways to address challenges. The resulting recommendations stand out for providing practical *how-to* guidance in effectively applying implementation science to the field of suicide prevention. Future efforts need to focus on finalising the guidelines, discussing the feasibility of implementing these guidelines and developing clear implementation strategies to realise these guidelines within real-world settings.

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