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Scoping Review

The State of Suicide Prevention Training Research: A Global Scoping Review

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Abstract

Objectives: This scoping review maps peer-reviewed evaluations of suicide prevention trainings by mapping study (e.g., design, geographic location) and training characteristics (e.g., content, duration, modality, pedagogical methods, populations), and outcomes assessed using Kirkpatrick's four-level evaluation model (Level 1: reaction; Level 2: learning; Level 3: behavior change; Level 4: results). *Methods:* Systematic searches in MEDLINE, PsycINFO, Embase, and CINAHL (2014–2024) identified peer-reviewed studies published in English or French that quantitatively examined suicide prevention training outcomes. Reviewers independently screened titles/abstracts and full texts, with conflicts resolved by consensus. Study and training characteristics were charted using a structured guide. Outcomes were categorized using Kirkpatrick's four-level model, and descriptive statistics were used to summarize data. We followed the framework developed by Arksey and O'Malley and adhered to the PRISMA Extension for Scoping Reviews guidelines. *Results:* Across 11,312 screened records, 326 studies met inclusion criteria, with most conducted in high-income countries (91%) and relying on nonrandomized designs (79%). Trainings were primarily delivered in-person (61%), brief (≤4 h; 53%), targeted clinicians (58%), and focused on supporting clinical populations (37%). Outcomes most frequently assessed Level 2 variables (e.g., knowledge, attitudes, skills; 88%), whereas far fewer studies measured level 3 (29%) or level 4 outcomes (9%), such as increased use of skills in real-world practice or reduced suicide-related distress. *Conclusion:* Suicide prevention trainings are widely implemented, and although many studies have attempted to evaluate their outcomes, this review identifies major gaps in geographic representation, study design, and outcome measurement. Future research should prioritize higher-level outcomes, with longer-term follow-up and evaluations conducted across diverse contexts to strengthen the evidence base and inform implementation.

KEYWORDS:

suicide prevention, training, scoping review, gatekeeper training, Kirkpatrick evaluation

Suicide is a pressing public health challenge, claiming over 700,000 lives annually worldwide, and leaving enduring consequences for families, communities, and institutions (World Health Organization, 2021, 2025). To address this challenge, many countries have adopted national suicide prevention strategies or plans that include training across healthcare, education, and community sectors (Platt et al., 2019). Such trainings are designed to equip providers with knowledge, confidence, and skills to recognize, respond to, and support individuals experiencing suicidal distress (Cramer et al., 2023; Kingi-Uluave et al., 2025).

Over the past decade, various suicide prevention trainings have been developed and implemented to address the needs of diverse populations and settings. Gatekeeper training, such as Question-Persuade-Refer (QPR; Quinnett, 2012), typically targets individuals likely to encounter someone contemplating suicide, such as teachers, coaches, and community workers, and focuses on recognizing warning signs, reducing stigma, effective communication, and timely referral to appropriate services (Hawgood et al., 2021; US Surgeon General & National Action Alliance for Suicide Prevention, 2012). Professional training, such as Collaborative Assessment and Management of Suicidality (CAMS; Ellis et al., 2017; Jobes, 2012), often extends these objectives to include comprehensive suicide risk assessment and delivery of evidence-based interventions, such as safety planning (Stanley & Brown, 2012). Finally, postvention training aims to prepare professionals and community members to respond following a suicide to reduce contagion, address grief, and identify and support those affected by suicide loss (Andriessen et al., 2019; Andriessen & Krysinska, 2011). Some trainings have also been tailored for specific populations, such as Indigenous people (Westerman & Sheridan, 2020; Wexler et al., 2017) and youth (Wasserman et al., 2015). These examples illustrate the breadth of available suicide prevention trainings. Because many trainings combine multiple components, such as gatekeeper skills, risk assessment, and postvention, and are delivered across overlapping populations and settings, this review adopts an inclusive framework for suicide prevention training.

Alongside the expansion of suicide prevention trainings, substantial efforts have been made to evaluate their outcomes. Prior reviews focusing on training outcomes have summarized subsets of this literature, often by examining specific types of training, such as gatekeeper training (Holmes et al., 2021; Kingi-Uluave et al., 2025; Spafford et al., 2024) or training for professionals (Audouard-Marzin et al., 2019; Parkhurst et al., 2025; Richard et al., 2023; Stover et al., 2023; Zarska et al., 2023). Broadly, reviews on gatekeeper training found that it enhances knowledge, skills, and self-efficacy among trainees, particularly in the short term. However, these reviews also highlight gaps in evidence regarding long-term outcomes and the translation of gains into real-world behavior change, underscoring the need for further research (Holmes et al., 2021; Kingi-Uluave et al., 2025; Spafford et al., 2024). Reviews of professional training (e.g., medical professionals, mental health professionals, pharmacists) have not provided clear answers about what training is provided and its effectiveness, as not all professionals receive training, curricula are not standardized across sectors, and high-quality studies are lacking (Audouard-Marzin et al., 2019; Parkhurst et al., 2025; Richard et al., 2023; Stover et al., 2023; Zarska et al., 2023).

Despite the growing evidence base on suicide prevention training, outcomes remain inconsistently reported and difficult to compare across studies. The Kirkpatrick model (Kirkpatrick, 1998) used in prior reviews of suicide prevention training (Audouard-Marzin et al., 2019; Barker et al., 2021) provides a useful 4-level framework for organizing heterogeneous outcomes across levels of impact. Briefly, Level 1 captures trainees' reactions to the training, such as satisfaction or relevance (e.g., Afsharnejad et al., 2023). Level 2 captures what trainees learned from the training, including knowledge, skills, or attitudes (e.g., Bartkowski et al., 2024). Level 3 captures whether trainees apply what they learned to their practice (e.g.,

Coleman & Del Quest, 2015). Level 4 captures whether the training benefits the individuals whom trainees are expected to support, such as improvements in quality of support and reduced suicide deaths (Demesmaeker et al., 2023).

To our knowledge, no review to date has comprehensively mapped suicide prevention training across settings [clinical (e.g., hospital) vs. nonclinical (e.g., school)], geographical regions, and populations (e.g., trainees and population targeted for suicide prevention). As a result, there is no consolidated evidence base describing what trainings exist, how they have been evaluated, and what types of outcomes have been examined. To address these gaps, our scoping review aimed to systematically map recently published (2014–2024) international peer-reviewed research on suicide prevention training. Specifically, we aimed to describe study characteristics (i.e., year of publication, geographic location, study design) and training characteristics (i.e., modality, pedagogical methods, content, trainees, and target population for suicide prevention), as well as reported outcomes using the Kirkpatrick model.

By mapping current knowledge, this systematic scoping review provides the first comprehensive overview of suicide prevention training across multiple settings, populations, and study outcomes, using the Kirkpatrick model as an organizing framework to situate training evaluations according to their intended levels of impact. In doing so, it identifies where evidence is concentrated, where important gaps remain, and how future studies could be designed to generate more comparable and meaningful evidence on suicide prevention training.

Method

We conducted a scoping review according to the methodological framework developed by Arksey and O'Malley (Arksey & O'Malley, 2005) and the PRISMA Extension for Scoping Reviews (PRISMA-ScR) reporting guidelines (Electronic Supplementary Material, ESM 1) (Tricco et al., 2018). We registered the study on Open Science Framework (doi.org/10.17605/OSF.IO/T4NYZ).

Information Sources and Search Strategy

Before conducting the systematic search, we completed two preparatory steps. First, we conducted a nonsystematic preliminary search in Google Scholar using the term *suicideprevention training* and reviewed the first 100 pages of results to assess the feasibility and breadth of the literature. Second, we selected 20 relevant articles from this preliminary search to develop the search strategy in collaboration with a research librarian (JB). The final search was conducted on June 15, 2024, in MEDLINE (Ovid), PsycINFO (Ovid), Embase (Ovid), and CINAHL (EBSCO), using keywords related to suicide and training; full search terms are provided in ESM 2.

Eligibility Criteria and Study Selection

Eligibility criteria were defined using the Population-Concept-Context framework (Peters et al., 2020). The population comprised all individuals positioned to support others in relation to suicide risk, such as healthcare professionals, educators, community gatekeepers, and peers. The concept was suicide prevention training, defined as structured interventions with explicit training objectives. Eligible interventions included suicide-specific programs and broader trainings, such as Mental Health First Aid (Morgan et al., 2018), when they included a suicide-focused component and reported suicide-specific outcomes. There were no limitations on the context of the included trainings – all studies examining trainings in any setting that met the population and concept requirements were included. Studies were included if they were published in peer-

reviewed journals between January 2014 and June 15, 2024, in English or French (for feasibility and in accordance with the team's language proficiencies). Eligible studies were quantitative or mixed-methods investigations including quantitative outcomes. Exclusion criteria included qualitative studies, protocols without primary data, gray literature, and informal educational initiatives without explicit training goals, such as awareness campaigns, posters, or media content. Studies were also excluded if they did not explicitly address suicide, focused solely on nonsuicidal self-injury or on general mental health literacy programs such as *Tools for Life* (Allen et al., 2023) or *Sources of Strength* (Calear et al., 2022). A complete list of eligibility criteria is provided in ESM 3.

Selection of Sources of Evidence

All records were imported into Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia), and duplicates were removed. Six reviewers (JG, MCG, YZ, MC, SM, and a research assistant) screened titles/abstracts and full texts in pairs (agreement: 86–97% and 86–91%, respectively) using predefined criteria (ESM 3). Discrepancies were resolved through discussion or consultation with a third author (JG, MCG, or SM).

Data Charting

Data extraction was performed using a structured charting guide (ESM 4). Extracted information included study characteristics (i.e., year of publication, geographic location, study design), training characteristics (i.e., content, clinical vs. nonclinical setting, trainees, population targeted for suicide prevention, duration, pedagogical methods), and outcome addressed as reported in each study (e.g., satisfaction, knowledge, cost-effectiveness). Geographic location was categorized by country, region, and income group using the World Bank classifications and terms (World Bank Group, n.d.).

Synthesis of Results

Extracted data were synthesized narratively. To manage the large volume of information, an inductive categorization and recoding guide was developed postcharting (ESM 5), allowing meaningful grouping of study and training characteristics into broader representative categories (e.g., trainees and health professionals from different disciplines, such as nursing, psychology, and medicine, were grouped under “clinicians”) (Pollock et al., 2023). Categories related to trainees and target populations for suicide prevention were retained only if represented in at least five studies; all others were grouped under “other” (e.g., media professionals, funeral staff). Extracted data were coded into multiple categories, as appropriate. For example, a study targeting suicide prevention in Indigenous youth was coded under both “youth” and “indigenous people” (e.g., Wexler et al., 2017). Training outcomes were categorized based on Kirkpatrick’s four-level model: Level 1 (reactions), Level 2 (learning), Level 3 (behavior), and Level 4 (results) (Kirkpatrick, 1998). Data charting and synthesis were conducted by one author and were verified by a senior author for accuracy. The charting and synthesis guide was iteratively refined during pilot extractions.

Descriptive statistics (using IBM SPSS Statistics, version 29) were conducted to summarize study, training, and outcome characteristics. Training content was not further analyzed following charting due to heterogeneity in reporting and topics covered.

Results

Literature Search

The database search identified 11,312 unique titles. After screening titles and abstracts, 10,846 articles were excluded. Full texts were obtained for 463 articles, of which 150 were excluded, leaving 313 eligible studies. Thirteen articles from the preliminary Google Scholar search that were not captured in the database search also met inclusion criteria, resulting in a total of 326 included studies (**Figure 1**). Publications generally increased over time, from 8 in 2014 to 44 in 2023 (**Figure 2**). The list of included studies is provided in ESM 6, while the charted data, including a list of the trainings and their references, are available in ESM 7 and ESM 8.

Study Characteristics

Geographic Location

A total of 39 countries were represented in the included studies. Most studies were conducted in North America (197/326, 60.4%), predominantly in the United States (186/326, 57.1%), with a smaller proportion from Canada (11/326, 3.4%). The East Asia and Pacific region contributed 58 studies (17.8%), led by Australia (37/326, 11.3%) and Japan (11/326, 3.4%). Europe and Central Asia accounted for 46 studies (14.1%), with the United Kingdom (7/326, 2.1%), the Netherlands (7/326, 2.1%), and France (6/326, 1.8%) representing the largest contributors. The remaining studies originated from Latin America and the Caribbean (12/326, 3.7%), South Asia (9/326, 2.8%), and the Middle East and North Africa (4/326, 1.2%). Overall, most studies were conducted in high-income countries (296/326, 90.8%), followed by upper-middle-income countries (18/326, 5.5%), lower-middle-income countries (11/326, 3.4%), and low-income countries (1/326, 0.3%).

Study Design

Most studies used a nonrandomized pre–post design (138/326, 42.3%) or a nonrandomized pre–post design with one or more additional follow-ups (84/326, 25.8%). Some studies (35/326, 10.7%) did not include pretraining data, measuring outcomes only immediately post-training, post-training with one or more follow-ups, or longer-term post-training (i.e., not immediate). Other designs included randomized pre–post (11/326, 3.4%), randomized pre–post with one or more additional follow-ups (18/326, 5.5%), and other randomized designs (i.e., post-only, crossover, stepped wedge; 7/326, 2.1%). Nine studies (2.8%) employed other designs (e.g., observational studies, cost-effectiveness simulation studies, and propensity score-matching). Overall, among 251 studies using nonrandomized or randomized pre–post designs, fewer than half (102/251, 40.1%) measured outcomes at two or more time points following training. Most articles examined the outcomes of a single suicide prevention training (297/326, 91.1%), while others examined more than one training (29/326, 8.9%), for a total of 360 assessed trainings.

Training Characteristics

Modality, Duration, and Pedagogical Methods

Among the 360 trainings examined across 326 articles, 77 (21.4%) were online, 218 (60.6%) were in-person, 37 (10.3%) were hybrid, and 28 (7.8%) were unspecified. The duration of trainings varied from less than an hour to full-semester college courses, although most (192/360, 53.3%) reported being four hours or less (**Table 1**).

Most trainings were delivered using a variety of pedagogical methods to support trainee learning. The majority (264/360, 73.3%) reported using traditional teaching methods, such as lecturing, presentations, videos, readings, and modelling from trainers. Over half of the trainings reported using active learning strategies (202/360, 56.1%), including discussion and Q&As, quizzes, and self-reflection activities, as well as experiential methods (216/360, 59.7%), including role-play, simulation, game-based learning, vignettes, case studies, and supervision. A minority (8/360, 2.2%) explicitly compared pedagogical training methods. For example, Godoy Garraza et al. (2021) assessed the effects of QPR gatekeeper training using four groups with different pedagogical methods (i.e., QPR with roleplay and booster, QPR with roleplay, QPR with booster, and QPR only).

Setting and Trainees

Half (165/326, 50.6%) of studies were conducted in nonclinical settings, such as community centers or schools. Another 136/326 studies (41.7%) were conducted in clinical settings, such as hospitals, and 25/326 (7.7%) were conducted in both clinical and nonclinical settings (e.g., Azizi et al. (2021) held training in a healthcare center and a mosque). The trainees were coded into 11 categories, including clinicians, primary and secondary students, postsecondary students, peers, community members, school personnel, first responders, Indigenous people, tradespeople, military, and other (**Table 2**).

Population Targeted for Suicide Prevention

Trainings described in the studies aimed to prevent suicide in 13 population groups, including medical and/or psychiatric patients, crisis line callers, youth, primary and secondary students, postsecondary students, older adults, community members, Indigenous people, rural communities, the military, clinicians, subcultural groups, tradespeople, and other (**Table 3**).

Outcomes Assessed

Outcomes were categorized using the Kirkpatrick model (**Figure 3**) (Kirkpatrick, 1998). Over one-third of studies (115/326, 35.3%) assessed Level 1 (reaction) outcomes, such as satisfaction, acceptability, perceived usefulness, and perceived feasibility of implementing learning into practice. Nearly 9 in 10 studies (286/326, 87.7%) examined Level 2 outcomes (learning), including knowledge, attitudes, stigma, beliefs, skills, preparedness, self-efficacy, confidence, competence, readiness to intervene, intentions to apply new behaviors, and willingness to work with individuals experiencing suicidal concerns. Fewer studies (93/326; 28.5%) assessed Level 3 outcomes (behavior), such as gatekeeper behaviors, referrals, documentation and note-taking, adherence to guidelines (e.g., media guidelines from the WHO; Acosta et al., 2020) or protocols (assessed through chart reviews and self-reported or observed skill use; O'Brien et al., 2024). Only a small minority (30/326, 9.2%) evaluated Level 4 outcomes (results) at the organizational or population level, including training cost-effectiveness (e.g., de Beurs et al., 2015), as well as patient outcomes, including service use, distress, help-seeking behaviors, and suicide rates (e.g., Azizi et al., 2021). Finally, some studies (61/326, 18.7%) reported outcomes outside the Kirkpatrick model, including training reach, trainer fidelity, and effects on trainees' own health or coping.

Discussion

This large scoping review provides the first comprehensive mapping of suicide prevention training evaluated in peer-reviewed literature in the past decade. Overall, the number of studies has increased over time from 8 in 2014 to 44 in 2023. However, across 360 trainings represented in 326 studies, we observed substantial heterogeneity in study and training characteristics, as well as outcomes examined. By organizing outcomes using the Kirkpatrick model, this review highlights a central challenge for the field: suicide prevention training is widely studied, but few studies have assessed its longer-term and real-world impact.

Most studies focus on short-term learning outcomes, with comparatively few assessing whether training changes practice or improves outcomes for the individuals and communities it is intended to support.

Geographic Distribution

The geographical distribution of studies revealed a marked imbalance, with nearly two-thirds originating from North America, particularly the United States. Evidence from low- and middle-income countries (LMICs) was extremely limited. Of the 326 included studies, 30 (9%) were conducted in LMICs, despite estimates that the majority of global suicide deaths occur in these settings (World Health Organization, 2021). Although some community-based initiatives, such as training pesticide vendors as gatekeepers, have shown feasibility and cost-effectiveness (Damerow et al., 2020; Weerasinghe et al., 2018), they remain underrepresented in the literature. At the same time, efficiency and opportunity cost must be considered. Where evidence of benefit is uncertain, investing in training initiatives may be less impactful than prioritizing population-level strategies with stronger empirical support, such as restricting access to highly hazardous pesticides (Lee et al., 2021; Schölin et al., 2023). Limited resources may therefore be better directed toward structural interventions, while ensuring that any training-based approaches are embedded within national suicide prevention frameworks and evaluated using system-level indicators (e.g., suicide or hospitalization rates) to assess their added value (Jacob, 2017; Moran et al., 2024; Pirkis et al., 2023).

Methodological Characteristics

Most studies (79%) rely on nonrandomized pre–post designs, with assessments conducted immediately post-training, providing preliminary evidence of short-term changes in proximal outcomes (e.g., Level 2 (learning): knowledge, confidence, attitudes). However, they do not permit causal inference. The limited use of randomized designs (9%) constrains the evidence base, leaving uncertainty about whether suicide prevention training yields measurable improvements, even in immediate Level 2 (learning) outcomes. A related gap concerns the near absence of long-term follow-up across study designs. Most studies with follow-up periods collected data only between one and six months post-training, leaving questions about longer-term effects largely unanswered. These findings align with earlier reviews noting the need for greater methodological rigor and longitudinal evaluation in suicide prevention training research (Holmes et al., 2021; Kingi-Uluave et al., 2025). Strengthening the evidence base may also require complementing randomized trials with methods suited to the complexity of suicide. Realist approaches, for example, examine how, for whom, and under what conditions suicide prevention training is effective (Pawson & Tilley, 2009), helping to identify mechanisms and contextual factors to inform more refined, context-sensitive evaluations.

Training Delivery

Trainings varied widely in modality, duration, and pedagogical methods. However, reporting on how training was delivered was inconsistent, which limits understanding of how specific training characteristics influence outcomes.

Overall, most trainings were short (≤4 h; 53%) and delivered in-person (61%), with relatively few using online (21%) or hybrid formats (8%). While brief trainings are more accessible to both gatekeepers and professionals, short interventions may not provide sufficient time for attitude changes, skill acquisition, or long-term consolidation (Holmes et al., 2021; Kingi-Uluave et al., 2025). Additionally, shifts toward online delivery, accelerated by the COVID-19 pandemic, suggest opportunities for scalability, yet systematic evidence remains limited (Schmeckenbecher et al., 2024). While some studies report benefits of

online training (Holmes et al., 2024), further research is needed to examine potential risks, including how to address the needs of participants with lived experience of suicide-related distress. In-person formats may better enable facilitators to monitor and respond to distress in real time. These issues warrant particular attention as online training is increasingly promoted as a lower-cost, scalable delivery model (Schmeckenbecher et al., 2024).

Pedagogically, most trainings combined traditional didactic instruction with some form of active or experiential learning, such as role-play, simulation, or discussion. Yet nearly half (40%) did not incorporate experiential approaches. In the near absence of studies comparing outcomes across various pedagogical methods, it remains unclear how information should be delivered when designing training programs. However, Kolb's Experiential Learning Cycle posits that effective learning unfolds through four iterative stages – concrete experience, reflective observation, abstract conceptualization, and active experimentation (Wijnen-Meijer et al., 2022). Applied to suicide prevention training, this last stage may include active engagement with realistic scenarios (e.g., role-play, simulation, standardized patients) that integrate practice into theory (Richard et al., 2023), which may be more effective than didactic teaching alone (Cross et al., 2022). Furthermore, post-training supervision, especially in professional settings, may help sustain learning over time (Putri et al., 2025). Future comparative studies are needed to identify the 'active ingredients' of training and determine which pedagogical methods most effectively produce sustained improvements across outcomes at different levels of the Kirkpatrick model.

Setting, Trainees, Targeted Population for Suicide Prevention

Studies were balanced across settings, with 51% conducted in nonclinical community environments, 42% in clinical settings, and 8% in both (e.g., healthcare center and a mosque; Azizi et al., 2021). Clinicians, including student clinicians, represented over half of trainees (58%). These distributions likely reflect dual priorities in suicide prevention: equipping community gatekeepers with the skills needed to identify risk and facilitate timely referral to appropriate services (Hawgood et al., 2021), and strengthening competencies among professionals who routinely work with populations considered high-risk. However, some populations, such as first responders, older adults, and sexual- and gender-diverse communities, were underrepresented in the included literature. Some of these groups are less likely to receive care adapted to their needs. For example, evidence indicates that sexual- and gender-diverse individuals engage in help-seeking more often yet remain at elevated suicide risk, suggesting that standard clinical pathways may be insufficient (Chum et al., 2023; Platt et al., 2018). This highlights the importance of extending and tailoring training and community-based initiatives beyond traditional clinical settings (Wainberg et al., 2017). Enhancing inclusivity and cultural responsiveness in training development, implementation, and evaluation, including meaningful collaboration with these communities, is essential for advancing equity in suicide prevention (Krishnamoorthy et al., 2025; Moran et al., 2024; Osborn et al., 2020).

Training Outcomes in the Kirkpatrick Model

Using the Kirkpatrick model (Kirkpatrick, 1998), just over one-third of studies assessed Level 1 (reaction) outcomes (35%), including satisfaction with training. Most studies examined Level 2 (learning) outcomes (88%), such as knowledge, attitudes, and self-efficacy. While Level 2 outcomes are important indicators of immediate learning, they provide limited evidence of real-world behavior change or impact on reducing suicide. Fewer than one-third of studies assessed Level 3 (behavior) outcomes (29%) following training, such as observable or self-reported gatekeeper behavior changes (e.g., Bartgis & Albright, 2016). Some studies examined adherence to established guidelines, for example, media reporting recommendations from the WHO (e.g., Acosta et al., 2020), as well as clinical behaviors assessed through chart reviews (e.g., O'Brien et al., 2024). Finally, less than 10% examined Level 4 (results) outcomes, such as patient outcomes, cost-effectiveness, or organizational

or institutional change. This distribution underscores an evaluation gap: Despite widespread training implementation, evidence of transfer of learning into practice and impact on suicide outcomes remains scarce. The implications of this imbalance depend on the findings of the few Level 3 and 4 studies. Although this review did not assess training effectiveness, improvements in suicide-related or system-level outcomes may justify the current distribution. In the absence of such evidence, the field may need to prioritize identifying and rigorously testing trainings that improve behavioral and patient-level outcomes before expanding process-focused research.

Addressing this evaluation gap could involve longer follow-up periods, incorporating patient-reported outcomes (Nock et al., 2022) and system-level metrics (e.g., routine screening implementation rates) into future evaluations, and linkage with service-level data (e.g., emergency department visits) or population-level indicators (e.g., suicide rates). However, such measures are complex and may be influenced by factors beyond the training itself, including service availability, referral pathways, and quality of surveillance data, which complicates attribution of observed effects to training alone, especially when training is part of a broader suicide prevention initiative (e.g., Lebenbaum et al., 2020). These aspects make full implementation and evaluation challenging, especially in low-resource settings or regions, such as LMICs (Alonzo, 2023). In addition, a systematic review synthesizing the results of existing randomized controlled trials would be beneficial to more clearly determine the extent to which suicide prevention training produces meaningful behavioral and patient-level effects.

Strengths and Limitations

This review, restricted to peer-reviewed articles published in English or French between 2014 and 2024, supported feasibility, but it may have introduced language and publication biases. Gray literature and informal educational efforts (e.g., awareness campaigns and public messaging) were also excluded, limiting the representation of grassroots and community-based initiatives. Limiting inclusion to studies with quantitative outcomes reduced opportunities to capture experiential and contextual insights available in qualitative work. The overall exclusion criteria may also limit the global representativeness of this review, especially in LMICs where training and prevention strategies may differ and peer-reviewed research is less feasible or prioritized (Alonzo, 2023; Shroff et al., 2017). Although all reported outcomes were documented, assessing intervention effectiveness or methodological quality was outside the review's scope and remains an important direction for future research. The large volume and heterogeneity of included sources complicated consistent data charting, which the team addressed through the use of a structured framework, pilot-testing, double coding, and consensus procedures (Pollock et al., 2023), yet variation in how training and pedagogical methods were reported constrained comparability across studies. Finally, although the Kirkpatrick model has been widely used for 60 years, some critics argue that it focuses solely on outcomes after training, overlooking important implementation and process mechanisms, including training feasibility, cultural relevance, and barriers to training (Reio et al., 2017). However, these other mechanisms can be explored in qualitative or implementation research (Putri et al., 2025).

Implications and Future Directions

The substantial heterogeneity in suicide prevention trainings, delivery contexts, and evaluation approaches limits the ability to draw actionable conclusions to inform implementation and policy decisions across settings. Future research should prioritize aligning training design with clearly defined outcomes and target populations. When feasible, evaluations should extend beyond Level 2 outcomes to assess sustained behavioral change (Level 3) and outcomes for service users or systems (Level 4), enhancing the evidence's practical utility (Reio et al., 2017). In addition, greater attention is needed to understand how and under what conditions training is effective, using approaches such as realist evaluation (Pawson & Tilley, 2009). Finally, the

development of reporting guidelines for suicide prevention training research could improve consistency in documenting training characteristics, evaluation methods, and implementation contexts, facilitating comparison across studies and supporting more informed decision-making. Collectively, these advances may strengthen the evidence base and promote the implementation of training that leads to meaningful improvements in practice and service quality.

Conclusion

This scoping review of 326 studies from 39 countries over the past decade reveals a fragmented evidence base, characterized by uneven geographic coverage and substantial variation in study and training characteristics. Research is disproportionately concentrated in high-income countries, particularly the United States, with limited representation from LMICs. Although training initiatives have proliferated across various settings, methodological limitations limit comparability and make it difficult to identify scalable practices. The predominance of Kirkpatrick Level 2 (learning) outcomes restricts our understanding of real-world impacts on individuals considering suicide and the institutions that support them. Collectively, these findings underscore the need for more rigorous, transparent, and context-sensitive evaluations that incorporate long-term follow-up, behavioral and system-level outcomes, and greater global representation to strengthen the evidence base and inform implementation.

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TABLES AND FIGURES

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Table 1. Duration of suicide prevention trainings

Duration	Number of trainings (*n* = 360), (%)
Unspecified	42 (11.7)
4 h or less (half day)	192 (53.3)
4.5–8 h (full day)	52 (14.4)
9–16 h (2 days)	39 (10.8)
More than 16 h	21 (5.8)
Variable (e.g., self-paced, condition-dependent)	15 (4.2)

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Table 2. Number of studies addressing types of suicide prevention trainees

Trainees	Number of studies (*n* = 326), (%)
Clinicians	190 (58.3)
Postsecondary students	98 (30.1)
Peers	84 (25.8)
Community members	82 (25.2)
School personnel	78 (23.9)
Students	22 (6.7)
First responders	15 (4.6)
Other (media professionals, funeral staff, trainers being trained by master trainers in train-the-trainer programs, employers/workplace leadership, frontline agricultural professionals, corrections staff)	14 (4.3)
Indigenous people	8 (2.5)
Tradespeople	8 (2.5)
Military	7 (2.1)

Note. The total number of studies and percentages will add up to more than 326 (100%) as some studies included multiple types of trainees.

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Table 3. Number of trainings aiming to prevent suicide in specific populations

Specific population	Number of studies (*n* = 326), (%)
Patients	120 (36.8)
Youth	51 (15.6)
Clinicians	43 (13.2)
Postsecondary students	43 (13.2)
Primary and secondary students	37 (11.3)
Military	14 (4.3)
Indigenous people	11 (3.4)
Rural communities	11 (3.4)
Subcultural group	10 (3.1)
Other (first responders, loss survivors, religious groups, smokers)	10 (3.1)
Community members	8 (2.5)
Tradespeople	8 (2.5)
Older adults	7 (2.1)
Crisis line callers	6 (1.8)

Note. The total number of studies and percentages will add up to more than 326 (100%) as some studies included multiple specific populations.

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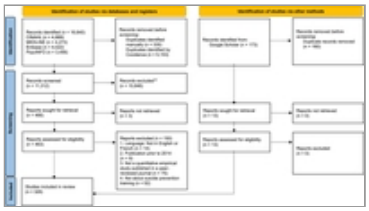


Figure 1.

Preferred reporting items for systematic reviews and meta-analyses for scoping reviews (PRISMA-ScR) study selection flow diagram.

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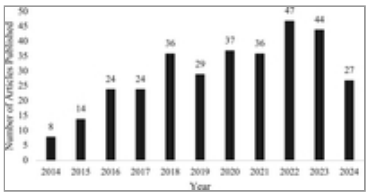


Figure 2.

Number of publications each year.

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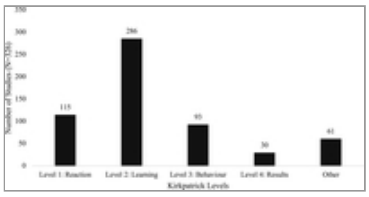


Figure 3.

Number of studies addressing each Kirkpatrick level.

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