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SPECIAL ARTICLE

Brazilian Psychiatric Association guidelines for the management of suicidal behavior. Part 3. Suicide prevention hotlines

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Crisis hotlines are direct communication systems, usually telephone-based, set up to prevent suicide. However, few studies have evaluated their effectiveness. The present study aims to perform a systematic review, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, of the effectiveness of interventions through direct communication systems to reduce the number of suicides or suicide attempts. We searched the MEDLINE, Cochrane, SciELO, and ClinicaTrials.gov databases, and used the 2011 Oxford Centre for Evidence-Based Medicine Levels of Evidence classification. The literature search yielded 267 studies, of which 35 fulfilled the selection criteria. Although significant heterogeneity was found among studies, there is evidence that direct telephone interventions are effective when included in broader preventive protocols and provided by trained staff. Despite the limitations, which included heterogeneity of samples, designs, and outcome measures, we were able to design a protocol for the use of remote services to prevent suicide and suicide attempts. A hotline or similar system could be an effective intervention for broader suicide prevention programs. However, further research is necessary to specify which protocol components are key to enhance effectiveness.
Systematic review registry number: PROSPERO CRD42020206517

Keywords: Suicide; crisis intervention; hotlines; prevention; lifeline

Introduction

Suicide is one of the leading causes of death worldwide and encompasses a number of continuum states.[1-3] According to the World Health Organization (WHO) Global Health Estimates 2000-2019, 703,000 people die by suicide every year worldwide.[2,4] The global age-standardized suicide rate in 2019 was 9.0 per 100,000 population, and the suicide rate is 2.3 times greater in men than in women. When broken down by age and country income level, most suicide deaths occur in low- and middle-income countries, where most of the world population lives.[2,4,5] More than half of global suicides occurred in the population younger than 50. Suicide is the fourth leading cause of death among young people aged 15 to 29 for both sexes, after road accidents, tuberculosis, and interpersonal violence.[4] Given this importance, the DSM-5[6] and the ICD-11[7] each included chapters to evaluate suicidal behavior as a priority aim, in order to propose a format to establish scientific studies that rely on the same construct.

However, the ubiquity of suicide and cultural and regional variabilities in this phenomenon need to be addressed to design feasible and effective prevention plans specific for each population. The global age-standardized suicide rate decreased by 36% among 2000 and 2019, with declines ranging from 17% in the Eastern Mediterranean region to 47% in the European region and 49% in the Western Pacific region.[4] The only increase in age-standardized suicide rates occurred in the

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Region of the Americas (17% in the same period).[8] As of 2019, Brazil had an age-standardized rate of 6.4 suicides per 100,000 in 2019.[1-4,9] Although below the global rate, it must be viewed with caution, as Brazil is a populous country with high absolute numbers of suicides (14,540 in 2019 alone). Comparing the years 2011 and 2017, there was an increase of 10% in the suicide rate in the population from 15 to 29 years old.[8]

International organizations agree on the need for a coordinated, comprehensive, intersectoral, and multidisciplinary response. This strategy is essential to ensure that the tragic event of suicide does not continue to claim lives and impact millions of people through the loss of family members or loved ones. Nevertheless, there is no consensus about the type of response necessary. Furthermore, several initiatives have already been attempted, covering a wide range of actions.[10] Most of these actions are composed of public campaigns, remote prevention facilities, and training of emergency personnel. Internet-based screening and passive smartphone surveillance to identify high-risk patients are understudied.[11] Therefore, investigations of interventions involving remote assistance through a direct communication system – e.g., suicide hotlines – are scarce when compared to the dimension of the problem in the context of public health. Publications on the mode of operation of these interventions reveal distinct characteristics about both the timing and circumstances of the intervention, the formulation of technical-operational requirements for the functioning of these mental health care structures, and even the characteristics of the targeted population.

Considering the severity of suicide as a public health issue – for example, every 40 seconds in the world and every 45 minutes in Brazil someone dies by suicide, and each suicide will impact the life of at least six other people –, this study endeavors to create a protocol for managing patients at risk of suicide through a remote response service, such as hotlines, as a means of contributing to a reduction in suicide rates. The main goal of this work is to ascertain whether a remote intervention in the form of a hotline can reduce suicide mortality, thus confirming its effectiveness or the need to pursue new avenues of investigation. Therefore, we performed a systematic review of the effectiveness of existing remote services which address suicidal behaviors in reducing the number of completed suicides and suicide attempts. The secondary goals were to ascertain: What is the best definition for a remote crisis center for suicide prevention? What are the core staffing needs for a remote crisis center for suicide prevention? What is the recommended response time (call-to-answer time and duration of intervention)? and What are the risk assessment tools used in a remote crisis center for suicide prevention? Lastly, a protocol is proposed, considering the results of the review.

Methods

Eligibility criteria

This systematic review included studies of the following types, published from 1983 to 2021: meta-analyses, systematic reviews, clinical trials, cohort studies, case-control studies, and cross-sectional studies. Non-systematic reviews or government documents could be used if the information was essential to answer the main questions. Case reports, case series, and editorials were excluded. There was no language limitation.

Subjects

Individuals with suicidal behavior, including suicidal ideation, suicidal plans, or suicide attempt, supported by remote (especially telephone) services; male or female, and of all ages.

Types of interventions

Interventions by a direct, remote communication system (usually telephone-based), for prevention of suicidal behavior and to meet the acute demands of suicidal patients.

Information sources

We searched the PubMed, Cochrane, SciELO, and ClinicalTrials.gov databases.

Search strategy

We searched for articles published in any language using the keywords: (“Suicide”) AND (“HOTLINE” OR “HELPLINE” OR “LIFELINE” OR “REMOTE CRISIS CENTER”). For the PubMed search, Medical Subject Headings (MeSH) terms were used. LB (identification) performed this step.

Selection criteria

LB and RRG reviewed the abstracts (screening). Some difficulties in evaluating results were found when analyzing the literature, namely: evaluation of suicidal behavior with different diagnoses; assessment and monitoring of suicidal behavior in different contexts, and with different criteria and instruments; and the fact that certain studies analyzed interventions in a small number of patients. As a result, the following criteria were adopted: 1) suicidal behavior studies for adolescents, adults, and older adults; 2) objective assessment of response, either by symptom reduction or using an objective scale; 3) suicidal individuals, including suicidal ideation, suicidal plans, or suicide attempt supported by s remote (particularly telephone) service; 4) male or female; 5) type of intervention: telephone or equivalent remote intervention for suicidal behavior to meet the acute demands of suicidal patients. The following were the exclusion criteria: 1) studies with fewer than 20 participants in the sample; 2) insufficient data and poor statistical analysis; 3) case reports, case series, editorials, or non-systematic reviews. After applying the criteria, 16 abstracts were rejected out of a total of 157 reviewed.

Data collection process

MG, CATW, SP, and RRG analyzed 72 full-text articles for eligibility. The chosen articles were read in full and only those that met the inclusion/exclusion criteria and did not present significant bias were kept. After reading and analyzing the full-text articles, a table with Oxford Centre for Evidence-Based Medicine (OCEBM) levels of evidence was assembled. At this stage, 114 articles were excluded and 37 were included.

Data items (primary outcomes)

We used reduction in suicide attempts and completed suicides as the primary outcomes.

Secondary outcomes

Reduction in suicidal thoughts, intention, or plans.

Other data items

We searched for brief interventions that could be used by remote services such as telephone hotlines. We investigated demographic characteristics, type of assessment and intervention, and duration of each intervention.

Study risk of bias assessment

For this step, we used the Cochrane risk-of-bias assessment tool.

Synthesis and evidence

In this process, all authors read the relevant articles in their entirety, then conducted a critical analysis of the evidence, extracted the results, and categorized the strength of the evidence. The levels of evidence and recommendation grades were chosen following the 2011 OCEBM classification (for further information, see https://www.cebm.net/wp-content/uploads/2014/06/CEBM-Levels-of-Evidence-2.1.pdf). Figure 1 shows the study selection flowchart, designed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework.

Results

For details, see Tables S1, S2, and S3, available as online-only supplementary material. Table S1 presents evidence of remote interventions for suicide prevention. Table S2 presents brief interventions that could be used

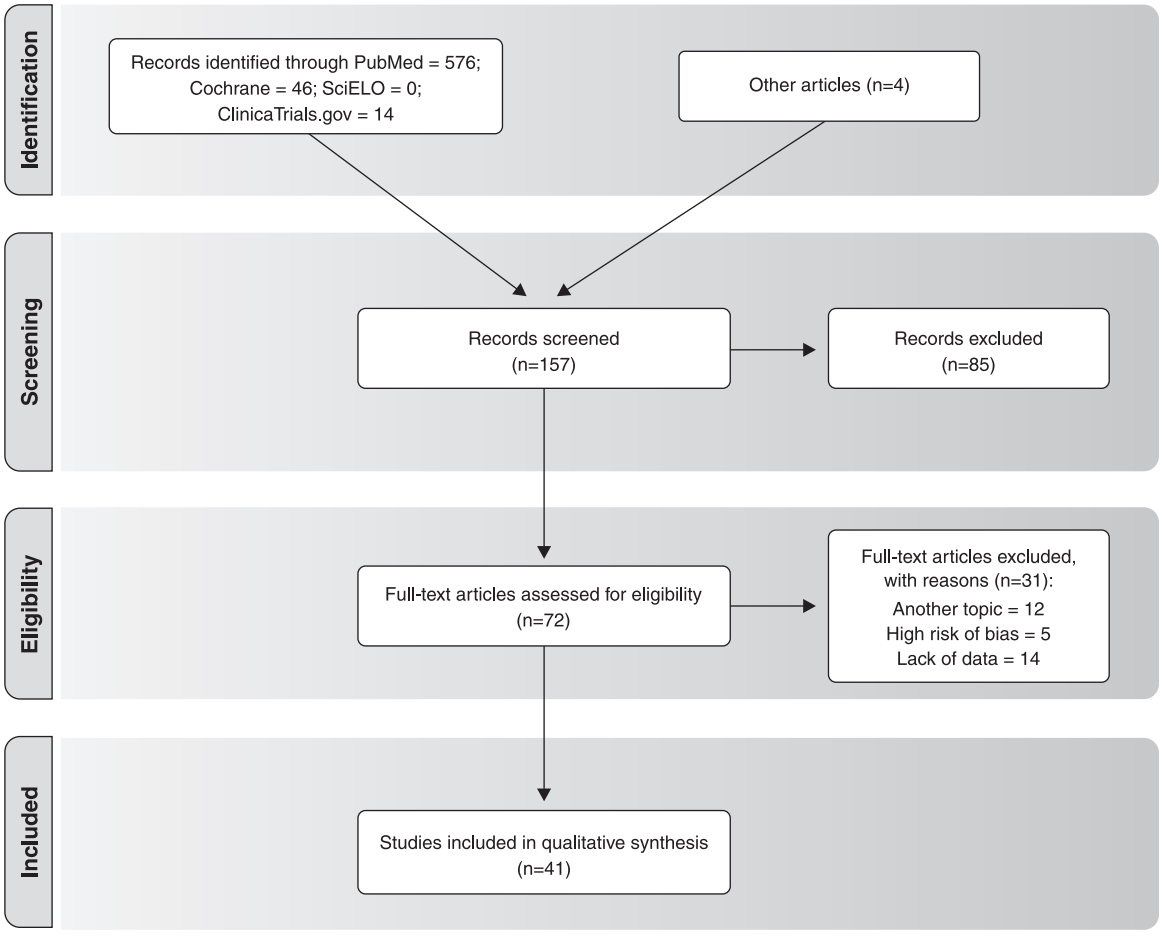


Figure 1 Flow chart of systematic review and article selection.

in a remote support service for suicide prevention. Table S3 presents some scales that could be used in remote support services to complement risk assessment and to help in decision-making.

Does a remote brief intervention or direct communication system (e.g., by telephone), such as the lifeline/hotline/helpline modality, reduce suicide attempts or mortality by suicide?

The methodological aspects and the outcome measures of the few studies selected were heterogeneous. Three main outcome measures with a satisfactory response were observed: suicidal thoughts, suicide attempts, and suicide. We found three main types of intervention: hotlines,[12] hotlines or other remote interventions with follow-up,[13-19] and remote follow-up after emergency department (ED) discharge.[20-26]

Specifically, we found evidence that crisis hotlines prevent suicidality (thoughts, plans, or attempts) and intent to die, hopelessness, and psychological pain[16] (Level of evidence 3); crisis hotlines had positive results in the reduction of suicidal thoughts[12,17] (Level of evidence 3); and, in older adults, tele-help was most promising to prevent suicide[13] (Level of evidence 3).

Implementing a protocol for early telephone follow-up after a suicide attempt could help prevent future attempts.[15] After discharge from the ED, follow-up by telephone was able to reduce the proportion of suicide attempts[15,20] (Level of evidence 2). After discharge, suicide attempts by deliberate self-poisoning presented no intervention-related differences, except for the telephone follow-up after 1 month group, which had no deaths by suicide.[23]

Another randomized controlled trial observed a reduction in suicide attempts with telephone calls as part of a follow-up protocol[21] (Level of evidence 2). Safety Planning Intervention (SPI) plus telephone follow-up showed a reduction in suicide attempts, suicide deaths, and other suicidal behaviors, including interrupted attempts[22] (Level of evidence 3). Hotlines with psychological intervention prevented new suicide attempts[19] (Level of evidence 3).

Brief interventions could also help prevent suicidal behavior events when delivered through remote services.[21] Evidence was observed for Brief Intervention and Contact (BIC)[24] (Level of evidence 2), Applied Suicide Intervention Skills Training (ASIST)[12] (Level of evidence 3), SPI[14,22] (Level of evidence 3), and unspecified psychological intervention[19] (Level of evidence 3).

Conclusion

The prevention of suicidal behavior, especially suicide and suicide attempts, can be achieved through the implementation of a remote assistance service as an adjunct to other health system interventions. However, it is important to emphasize that studies in the literature report on different models and are susceptible to sample heterogeneity. Therefore, implementation of this type of service requires further monitoring to assess its impact. Brief interventions are another valuable tool that should be pursued, with proper training.

Definition of direct telephone support (hotline, lifeline, or others)

Traditional hotlines, according to Brody et al.,[27] connect callers to service centers via a phone call.[25-27] Hotlines typically operate 24 hours a day, 7 days a week, and are commonly used for services such as crime tips, suicide crisis support, support for sexual assault and rape victims, bullying victims, runaway children, and human trafficking victims.[25,27] Hotlines have been in use for over 50 years and were originally designed to connect people in crisis with live, confidential, and anonymous support services outside of normal business hours.[26-28] The development of hotlines was a critical step in connecting individuals to services in situations where access to in-person services was not possible due to distance, provider availability, stigma and shame experiences, the need for confidentiality, or the timing of the crisis.[25-27]

Suicide prevention hotlines work in two ways: they secure the immediate safety of suicidal callers and they connect those who may be in danger of suicide (e.g., people with mental illnesses or those who are homeless) with suitable and available resources.[29] Suicide prevention hotlines "offer phone-based assistance for individuals who are at risk of suicide or concerned about someone at risk of suicide," according to a report from the California Department of Mental Health, Office of Suicide Prevention. Suicidal people may also dial 911 or contact other emergency services, such as domestic violence or poison control hotlines.[29] Lifeline is a network of 164 crisis centers in 49 states, with 11 in California.[29]

Tyson et al.[30] used the term telephone helpline to describe an approach for helping people who are suicidal or self-harming. The authors claim that this technique has various advantages over conventional therapeutic intervention methods, including ease and immediacy of access, client confidentiality, cost-effectiveness, and service accessibility to those who are geographically and physically separated.[30]

The word "hotlines" is used by Kalafat et al.[31] as a synonym for "Crisis Centers." For over 40 years, he has defined telephone crisis services (TCS) as a support for numerous maladaptive behaviors, such as alcohol crisis intervention and referral, interpersonal violence, or suicidal conduct services.[31]

Tele-Help/Tele-Check, a telephone service initially developed to help older persons with home support, is also used for crisis management. Tele-Help/Tele-Check employs a portable alarm system and provides clients with active contacts by qualified people who can give information, support, and prompt action in case of medical and psychological problems.[13] Cebrià et al.[20] use the term telephone intervention program for a follow-up after discharge.

Gould et al.[16] use the term crisis hotlines, but do not clearly conceptualize it. In another article,[12] they use the term "crisis center with lifeline" to mean telephone counselors answering Lifeline calls.

Another effort is the National Suicide Prevention Lifeline network, which provides free and confidential emotional support to those in suicidal crisis or emotional

distress across the United States 24 hours a day, 7 days a week. The Lifeline is a national network of over 180 local crisis centers that provide customized local treatment and services while adhering to national standards and best practices.[32] According to Labouliere et al.,[14] the Lifeline ensures that callers in crisis can dial this toll-free number 24 hours a day, from any location in the United States, and be connected to a trained local counselor who can provide risk assessment, de-escalation, crisis intervention, and referral to mental health services.[15] The term "lifeline" has been used elsewhere to refer to a network of various hotlines and crisis centers.[14,33]

Conclusion

The definition of this type of service varies from author to author, and their specific purpose also varies. "Lifeline" is used to refer to a network of hotlines, crisis centers, or helplines with shared access. "Hotlines" is the preferred term for specific remote services to prevent suicide deaths, attempts, and other suicidal behaviors.

What are the core staffing needs of hotlines?

Psychiatrists have been reported as an essential part of the core team of hotlines by some authors,[15,19,20,23,24] as have psychologists,[19,21,24] nurses,[18,20,24] people close to the patient,[21] trained counselors,[14,16,31,33] and trained staff members.[13] One author stated that trained counselors may be used in the Safety Plan.[14] Crisis counselors indicated that SPI would be both possible and beneficial in crisis calls immediately after training, that SPI training was valuable, and that they had a high degree of self-efficacy for employing SPI in future crisis calls.[14] During a 9-month post-training period, crisis counselors reported using SPI with suicidal callers on both inbound crisis calls and follow-up calls, and that SPI was successful in both types of calls. Higher self-efficacy immediately following training was linked with increased SPI usage during the 9-month post-training period, and perceptions of feasibility and helpfulness immediately following training predicted reports of SPI effectiveness about 9 months later.[14] However, a consultant psychiatrist may help during the patient's initial interview.[15]

SPI, as well as telephone follow-up following ED release, was administered by professional social workers or psychologists who were overseen by a senior member of staff.[22] Master-level students in psychology, social sciences, or health sciences who had graduated were used in one study. Total training time per research assistant was around 100 hours (nine training sessions lasting 6-8 hours each, plus 2-4 hours of preliminary homework).[34]

In fact, comparative research suggested that, compared to trained lay volunteers, mental health experts may be less efficient in giving telephone aid to suicidal patients.[35] Although there is no agreement on who the required experts are, training is an important factor.[18]

Conclusion

In our opinion, the team needs to be composed of properly trained professionals. We suggest the presence of a psychiatrist for team coordination, planning, and more complex assessments, as well as physicians, psychologists, and nurses. Although the literature reports the use of counselors and volunteers, it is important to point out that hotline services require not only provision of support during the crisis, but also technical screening and the ability to distinguish cases that can be followed up in an outpatient clinic from those that should be immediately referred to an emergency service.

What is the recommended response time (call-to-answer time and duration of intervention)?

The literature does not provide information about the ideal response time for answering the call of a patient with suicidal behavior. On the other hand, interventions ranged from 5 to 45 minutes.[12,20,21,29,30] Calls with a longer time were not considered, as they do not meet the objective of a remote support service for risk assessment. One study included: (i) information collected on treatment, adherence to mental health services, and current life stressors; (ii) a standard 5-to-10-minute telephone follow-up at 1, 3, 6, and 12 months, collecting the same information about the current situation of the patient and detecting whether significant changes had occurred; (iii) a 15-to-45-minute intervention for crisis situations, adapted to the patient's clinical characteristics and personal circumstances. A typical call lasted 5-10 minutes. Calls were made to both landline and mobile telephones.[20]

Conclusion

As there is no consensus in the literature, in our opinion, calls should be answered as soon as possible. The maximum waiting time should be 2 minutes, and the conversation should last 5-10 minutes, which is enough for a brief screening. The dialogue and intervention may be extended on a case-by-case bases.

What are the risk assessment tools used in hotline services?

A trained health professional is needed to assess whether the patient is in imminent danger and to choose the best course of action. Structured questionnaires may be used in assessments; however, a more open interaction with the patient, family, or friends can provide information about the patient's behavior, risk and protective factors, and history of medical and mental health care. Assessments can also be used to create personalized intervention programs and track their success.[36]

On the other hand, as stated in the previous article in this series, no single factor can predict suicidal behavior, and existing tools lack evidence of efficacy; therefore, the evaluation must be broad.[37] These tools should be used as an adjunct to the evaluation process. Given the

complexities of this evaluation and the impossibility of performing it on a broad scale, we propose that any sign or symptom that suggests a desire, thought, or effort to self-harm or try to end one's life be considered positive screening.

In one study, telephone calls were used to encourage the continuation of ED-prescribed therapy, as assessed by the referring psychiatrist at post-discharge and future visits. In other situations, follow-up with a primary physician was organized by the treatment plan outlined by the referring psychiatrist. When an elevated risk of suicide was recognized, an emergency visit to the hospital was scheduled. As a result, the experimental intervention included a variety of strategies to enhance adherence to normal therapy as well as quick interventions in crisis circumstances.[20]

Fleischmann et al.[24] used a questionnaire[38] to perform a full evaluation of all suicide attempters recruited, which was translated into the local language of each study site, adapted to account for cultural differences, and pilot-tested to assess face and content validity. The questionnaire was based on the European Parasuicide Study Interview Schedule (EPSIS), which was used in the WHO/EURO Multicenter Suicidal Behavior Study. It includes sociodemographic information, information about the most recent suicide attempt, some clinical characteristics (e.g., mental and physical health status, traumatic events, alcohol and drug use), and multiple self-report measures. A one-page questionnaire was used to document follow-up contacts with patients. The questions included whether the patient was still alive and, if not, what the cause of death was.[24]

Miller et al.[21] employed the Coping Long Term with Active Suicide Program for Emergency Departments (CLASP-ED) method, which included up to seven short (10-to-20-minute) phone calls to the participant and up to four calls to a significant other designated by the person, if accessible. The calls centered on identifying suicide risk factors, defining objectives and goals, ensuring safety and future planning, supporting treatment engagement/adherence, and facilitating patient problem-solving.[21] Gould et al.[16] used the Suicide Risk Status, Client Feedback on Call, Plan of Action and Compliance, Service Utilization and Compliance and, in another study, ASIST.[12] Shaw et al.[39] used the Modified Mental State Rating Scale and Modified Suicide Risk Scale.

We suggested several assessments that might help in the identification of patients in the first part of this series. However, suicidality assessment methods did not achieve acceptable accuracy for the suicide outcome.[40] As most scales are incapable of accurately assessing and forecasting a future attempted or completed suicide, no single scale or measure can be recommended to substitute a full examination performed by a psychiatrist. These tools are only of supplementary use and must be accompanied by a complete history, physical and psychological evaluation, and risk and protection factor assessment.[41] Thus, the use of scales must be considered as merely adjunctive.

Assessments need to look for warning signs and risk factors, patient engagement with the support, the possibility of applying universal screening and follow-up, as well as classifying patients into low, moderate, and elevated risk, to decide if the call should be followed by continued universal screening or referral to an ED.

Conclusion

The hotline assessment should be brief, goal-oriented, and performed by a trained health professional. Instruments or scales can be used, but, in our opinion, an empathetic interview is indispensable. The following data should not be omitted: assessment of risk and protective factors, questioning about suicidal behavior, previous history, and access to treatment. The aim of remote care is primarily to provide patient comfort, but it must also identify higher-risk patients and direct them to treatment. In potentially serious cases, a referral to emergency services is essential.

Discussion

The studies examined in this systematic review focused on the use of point-to-point remote telephone assistance to reduce suicide mortality, taking into account some variables, such as the circumstances of the patient in a suicidal crisis, the moment of the search for help, and the nature, structure, and team of the remote care service. In addition, although few studies have assessed the effectiveness of these models and heterogeneous results are presented, remote psychiatric intervention in the hotline model has shown potential to prevent suicide attempts or deaths by suicide.[13,15,18,19,21-24]

The care offered must be able to screen patients at lower, moderate, and higher risk, so that the latter are referred to an emergency service. This is not a substitute for usual treatment and requires contact with the health network for outpatient referrals. In fact, hotlines need to be one of several tools that can be used together to prevent suicide. The main proposals of the screening and intervention are to ask the patient what is happening, assess for risk factors, conduct universal screening, assess if the patient is already known to the health services and being followed, enquire about suicidal behavior, and respond accordingly to the patient's risk level. If the risk of a suicide or suicide attempt is high, referral to an ED is recommended. However, even for low- and moderate-risk patients, follow-up is necessary and contact with other health services should be triggered to ensure universal screening and follow-up.

In addition, hotlines/lifelines must be able to monitor patients to ensure they are doing well and on treatment. The best results to date have been seen for interventions delivered as follow-up, not simply responding to spontaneous calls. Regarding the evaluation, although several instruments and protocols are available, at a minimum this should include a risk assessment, a discussion about suicidal behavior, patient history, and access to treatment. In patient records of suicidal behavior, suicidal ideation must be distinguished from planning and attempts, the latter being of greater severity.

One study identified patient barriers to the use of hotlines: beliefs about mental health problems, financial

barriers, personal barriers, and barriers related to beliefs about mental health services.[33] Thus, to implement such a service, an education campaign and planning are necessary.

In this guideline, we proposed a model that was based on what is currently available in the literature. For more details, see Figures 2 and 3.

It is important to note that, although this study is unprecedented in that it reviews the existing scientific evidence on suicide hotlines, there are several limitations. The included studies are heterogeneous in terms of design, the means of intervention employed, outcome variables assessed, and staffing composition. Future studies should focus on systematized protocols, trained staff, and, especially, on assessment of the reduction in the number of suicide cases and attempts in regions where the service is available as the primary outcome variable. Studies that specifically assess the effectiveness of remote interventions and that use not only telephone calls, but also new digital resources such as the Internet and text messages, are essential for future planning of effective measures to prevent suicide and address it as a public health issue.

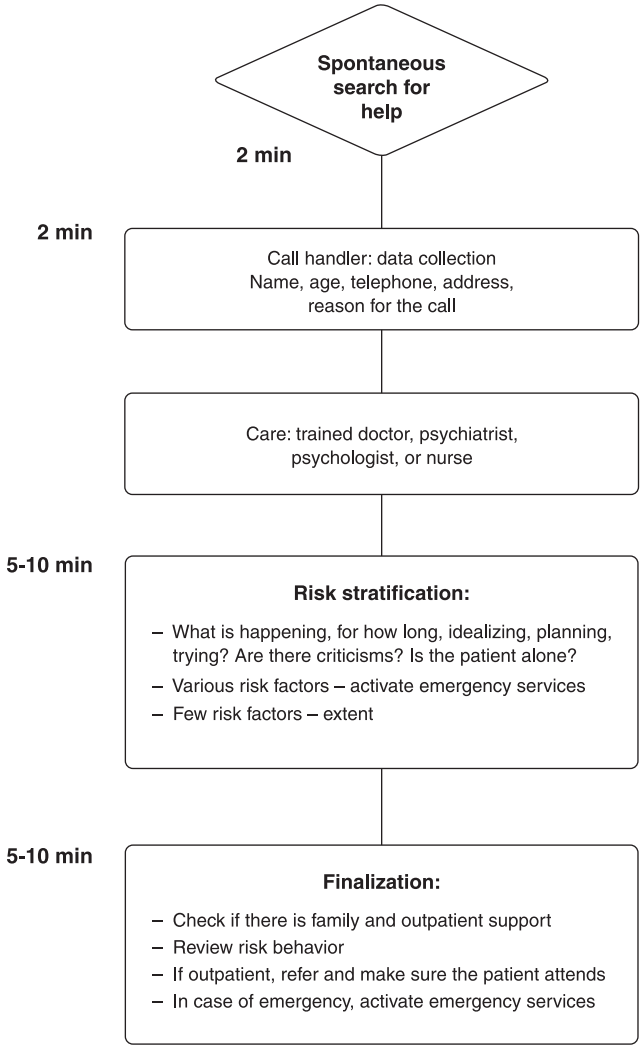


Figure 2 Flowchart of spontaneous help-seeking. The call should be longer if necessary.

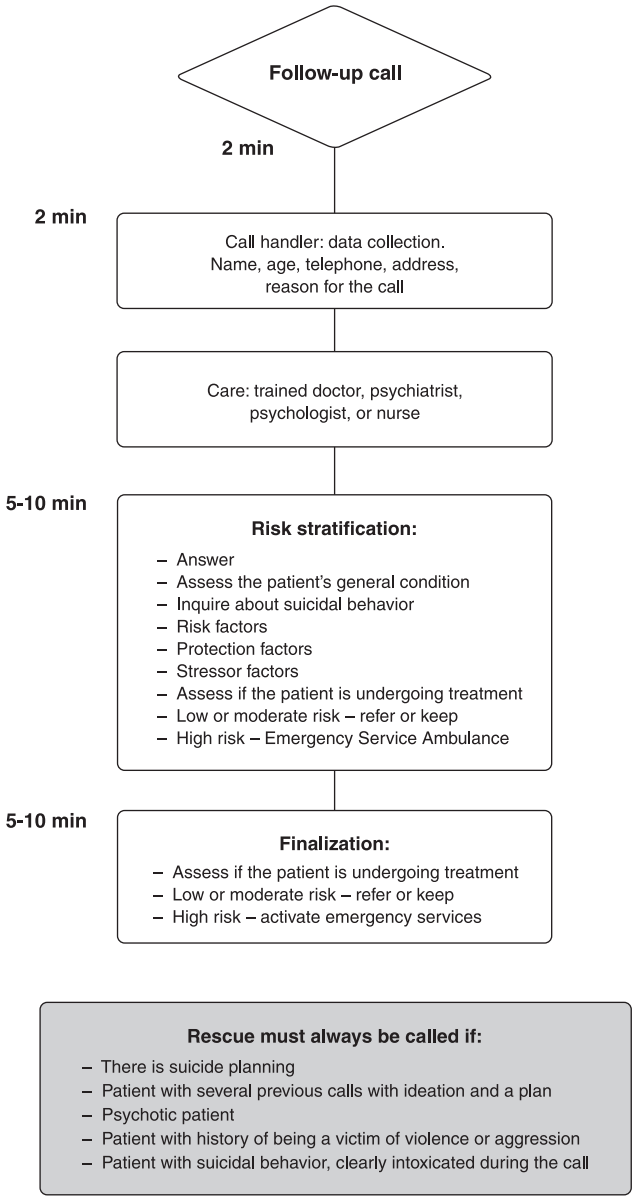


Figure 3 Flowchart for telephone follow-up of callers after the initial call. The call must be longer if necessary.

Disclosure

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Corrigendum

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This is to correct the name of an author in the article titled "Brazilian Psychiatric Association guidelines for the management of suicidal behavior. Part 3. Suicide prevention hotlines" (http://doi.org/10.47626/1516-4446-2022-2536), by Baldaçara et al., published in the *Brazilian Journal of Psychiatry*, volume 45, issue 1, Jan-Feb 2023. In the list of author, "Ives Passos Cavalcante" should read "Ives Cavalcante Passos." Below we reproduce the correct list of authors:

Leonardo Baldaçara, César Augusto Trinta Weber, Miriam Gorender, Roberta R. Grudtner, Sandra Peu, Ana Luiza Silva Teles, **Ives Cavalcante Passos**, João Quevedo, Antônio Geraldo da Silva