Psychological Assessment

Psicologia: Teoria e Prática, 24(2), ePTPPA14095. São Paulo, SP, 2022.
ISSN 1980-6906 (electronic version). **Evaluation system:** double blind review
Universidade Presbiteriana Mackenzie.
https://doi.org/10.5935/1980-6906/ePTPPA14095.en

Suicide prevention programs: An integrative literature review

Makilim N. Baptista, Felipe Augusto Cunha, Helder Henrique V. Batista, and Gabriela da S. Cremasco

Postgraduate Program in Psychology, Universidade São Francisco (USF)

Received: November 17th, 2020.
Accepted: August 31st, 2021.

Author notes

Makilim N. Baptista http://orcid.org/0000-0001-6519-254X
Felipe Augusto Cunha http://orcid.org/0000-0001-7977-9712
Helder Henrique V. Batista http://orcid.org/0000-0001-5588-8682
Gabriela da S. Cremasco http://orcid.org/0000-0003-2075-8049

Financial support: The present work was carried out with the support of the Coordination for the Improvement of Higher Education Personnel (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior [Capes]) – financing code 001.

Correspondence concerning this article should be addressed to Helder Henrique Viana Batista, Avenida Padre Manoel da Nóbrega, 355, Residencial Vitória, Bloco B 17, Jardim Garcia, Campinas, SP, Brazil, CEP 13061-140. *E-mail*: helder.hvb@gmail.com

Abstract

International scientific productions about suicide prevention programs were analyzed in the PsycInfo, PubMed, and ScienceDirect databases. Eighty-nine studies were obtained and, after analyzing the inclusion and exclusion criteria, 26 publications remained, which were included in the review. The publications were evaluated according to the year of publication, authorship, name, format, duration, target public, and country of application of the prevention program. Subsequently, a detailed description of the stages of each program, target audience, materials used, and constructs covered was carried out. In general, the results indicated 18 types of programs, most of them applied in the United States, and all interventions were directed to the school context. Considering that suicide is a public health problem, knowing prevention programs can help health professionals to improve initiatives in relation to the phenomenon of suicide.

Keywords: suicidal behavior, review, prevention, mental health services, depression

PROGRAMAS DE PREVENÇÃO AO SUICÍDIO: REVISÃO INTEGRATIVA DA LITERATURA

Resumo

Analisaram-se produções científicas internacionais acerca de programas de prevenção ao suicídio nas bases de dados PsycInfo, PubMed e ScienceDirect. Obtiveram-se 89 estudos, e, após a análise dos critérios de inclusão e exclusão, restaram 26 publicações que foram incluídas na revisão. As publicações foram avaliadas quanto a ano de publicação, autoria, nome do programa de prevenção, formato, duração, público e país de aplicação. Posteriormente, realizou-se uma descrição detalhada das etapas de cada programa, do público-alvo, dos materiais utilizados e dos construtos abordados. De forma geral, os resultados indicaram 18 tipos de programa, com a maior parte deles aplicados nos Estados Unidos, além de todas as intervenções terem sido direcionadas para o contexto escolar. Considerando que o suicídio é um problema de saúde pública, conhecer os programas de prevenção pode auxiliar os profissionais de saúde no aprimoramento das iniciativas em relação ao fenômeno do suicídio.

Palavras-chave: comportamento suicida, revisão, prevenção, serviços de saúde mental, depressão

PROGRAMAS DE PREVENCIÓN DEL SUICIDIO: UNA REVISIÓN INTEGRADORA DE LA LITERATURA

Resumen

Las producciones científicas internacionales sobre programas de prevención del suicidio se analizaron en las bases de datos PsycInfo, PubMed y ScienceDirect. Se obtuvieron 89 estudios y, tras analizar los criterios de inclusión y exclusión, quedaron 26 publicaciones que fueron incluidas en la revisión. Las publicaciones se evaluaron según año de publicación, autoría, nombre del programa de prevención, formato, duración, público y país de aplicación. Posteriormente, se realizó una descripción de las etapas de cada programa, público objetivo, materiales utilizados y constructos cubiertos. En general, los resultados indicaron 18 tipos de programas, la mayoría de ellos aplicados en Estados Unidos, además de que

todas las intervenciones fueron dirigidas al contexto escolar. Considerando que el suicidio es un problema de salud pública, conocer los programas de prevención puede ayudar a los profesionales de la salud a mejorar las iniciativas relacionadas con el fenómeno del suicidio.

Palabras clave: conducta suicida, revisión, prevención, servicios de salud mental, depresión

Suicide is considered a complex phenomenon, involving several biological and psychosocial risk factors. Risk factors for suicidal ideation may also be different from those for suicide attempts, making the phenomenon of suicidal behavior (ideation, attempt, and suicide) difficult to predict (Stone et al., 2017). Suicide is a public health problem that affects developed and developing countries, and Brazil presents high epidemiological rates. It is considered the eighth country with the highest number of deaths from suicide, with 12,495 cases being registered in the country in 2017 and 13,467 in 2016. The mortality rate in Brazil, between 2010 and 2014, was 5.23/100,000 inhabitants, reaching 6/100,000 in 2016, and the prevalence has been increasing in recent decades (Dantas et al., 2018; Departamento de Informática do Sistema Único de Saúde, 2019; Silva et al., 2018). The World Health Organization (WHO, 2014) has been developing several initiatives coordinated among countries to prevent this phenomenon and, despite the fact that the gross number of suicides in the world decreased in the period between 2000 and 2012 (from 883,000 to 804,000), in Brazil, rates continue to increase.

As it is a complex multicausal phenomenon, with several risk and protective factors, multiple interventions are more effective for its prevention. Some of the objectives associated with the worldwide prevention of the phenomenon are the concern with monitoring and expanding scientific research; identification of vulnerable groups; implementation of assessments and management of suicidal behavior; promotion of protective factors and environments; expansion of society's attitudes towards suicide, in order to reduce the stigma related to suicide and mental disorders; decreased access to means of suicide attempt; encouragement for news outlets to adopt appropriate policies and practices when reporting suicide; and support for individuals bereaved by the suicide of relatives and friends (Arensman, 2017; WHO, 2014).

Prevention programs can be carried out in different contexts, such as schools, workplaces, and communities, and they can reduce the risk of incidence of attempts and suicides (Turecki & Brent, 2016). Accordingly, several initiatives have demonstrated the importance of economic programs associated with the protection of individuals (e.g., health insurance, pension programs), programs aimed at mental health (a health system specialized in supporting people with symptoms of mental disorders and/or risk factors associated with the triggering of problems related to mental health), social engagement programs (e.g., increased community activities, family relationships), and programs related to the development of coping with stressful situations (training in coping with problems and emotional self-regulation) (Stone et al., 2017). Prevention strategies are more developed in countries that have joined the WHO's prevention program, however, there is a big difference in the various initiatives, considering the global context or even that of Latin America (Mascayano et al., 2015).

Prevention programs that include the greatest number of risk and protective factors, from the point of view of biological and psychosocial variables, are more relevant, as distal (situations that occurred with the individual in the past, such as sexual violence and trauma)

and situational risk factors (current stressful events, such as unemployment) are responsible for increasing the chances of suicide attempts and occurrences (Malhi et al., 2018). However, for prevention programs to be implemented, several aspects must be taken into account, such as the limited financial resources of the developing countries, healthcare providers without adequate training, and non-priority social policies, as well as cultural barriers, such as inadequate public beliefs (Mascayano et al., 2015).

The existence of suicide prevention programs must be followed by evidence that these programs are effective in reducing the phenomenon; however, diverse initiatives are welcome. For example, some programs instituted in educational environments can be promising, despite their heterogeneity (Mann et al., 2005; Zalsman et al., 2016). Several programs aimed at students or at educational institutions are well documented in the international literature, however, articles that report in detail the functioning of the different programs were not found in the international and national literature (Cusimano & Sameem, 2011; Katz et al., 2013; Robinson et al., 2013), constituting a significant gap. Based on the above, the aim of this study was to perform an investigation of the international literature on suicide prevention programs and to describe it.

Method

Search strategies, eligibility criteria, and data extraction

The investigation was carried out in March 2021 in the PsycInfo, PubMed, and ScienceDirect databases, with no date restriction. In all the databases, the search term "suicide prevention program" was used. The inclusion criteria used for the selection of publications were that they describe suicide prevention programs and that they had been published in scientific journals. Exclusion criteria were publications in the form of a course conclusion work, dissertation, thesis, as well as books, theoretical articles, and literature reviews.

Eligible publications were initially evaluated by reading the titles and abstracts, excluding those that did not fulfill the eligibility criteria, and considering the latest update of the preferred reporting items for systematic reviews and meta-analyses (PRISMA) model (Page et al., 2021). After the initial screening, the remaining papers were read in full, and those that did not fulfill the criteria were also excluded (e.g., those aimed at verifying the prevalence of symptoms of depression or correlational studies). The articles that composed the review were evaluated according to their main characteristics, such as year of publication; authorship; name, format, and duration of the prevention program; participants; and country of application. Subsequently, a description of each intervention program was carried out.

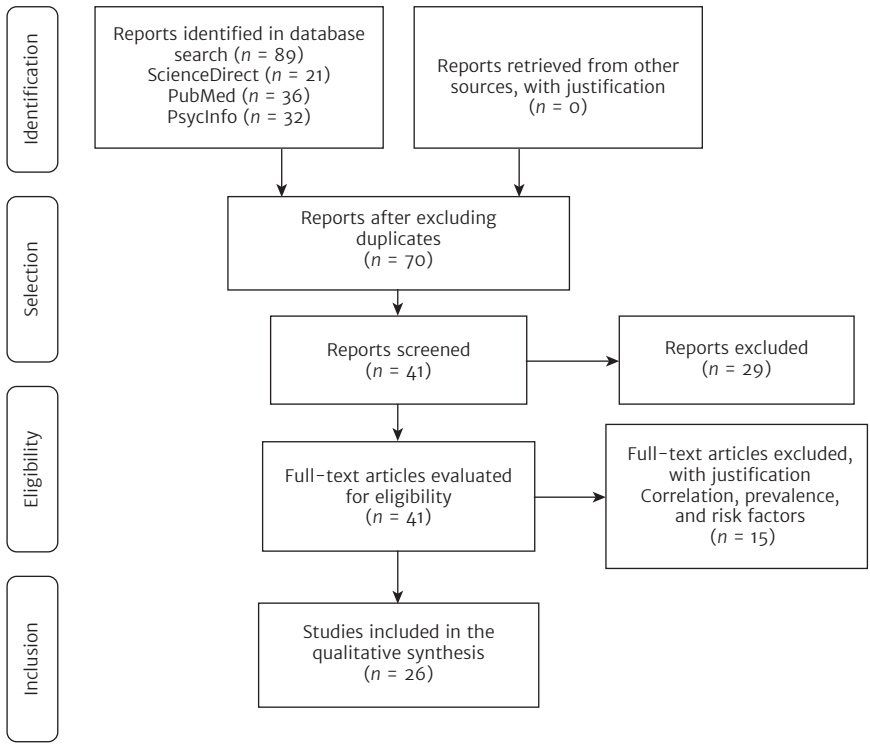
Results

A total of 89 publications were obtained from the databases (Science Direct = 21; PubMed = 36; PsycInfo = 32), 19 of which were excluded due to being duplicates. After reading

the abstracts, based on the inclusion and exclusion criteria, 41 works were selected. The complete texts were retrieved, and, after reading them in full, another 15 were excluded as their objectives differed from those this review intended to identify, leaving 26 articles for evaluation. In Figure 1, the flowchart of decisions based on the PRISMA guidelines is presented (Page et al., 2021).

Figure 1

Flow diagram



Source: Adapted from Page et al. (2021).

The year of publication; authorship; name, format, and duration of the preventive program; target audience of the program; and country of application were the characteristics identified in the 26 articles selected for this review. The data are presented in Table 1.

Table 1

Authors, year of publication, program name, format, and duration, participants, and country of application

	Authors (year)	Name of the prevention program	Format	Duration	Participants	Country of application
1	Kinchin et al. (2019)	*SafeTalk*	Face to face	Not reported	Adolescents (15 to 19 years)	Australia
2	Bailey et al. (2017)		Face to face and online	4 weeks	Adolescents (15 to 18 years)	Australia
3	Zinzow et al. (2020)	*Brief Suicide Prevention Program for College Campuses*	Face to face and online (post-training)	· 90 minutes · Training between August 2015 and February 2017	Students, faculty, and other university staff	United States
4	Bustamante et al. (2018)	*Red para la Atención y Derivación de Adolescentes en Riesgo Suicida* (RADAR)	Face to face and online	Not reported	Adolescents (15 to 18 years), parents, teachers/ administrators, healthcare providers, proctors	Chile
5	Rein et al. (2018)	*Kognito*	Online	· 30 minutes of application · Collections between April 2014 and September 2015	Students, faculty, and university staff	United States
6	Katsumata et al. (2017)	Not reported	Face to face (online platform)	4 hours – one single day	Students (*M* = 21.3 years)	Japan
7	Schilling et al. (2016)	*Signs of Suicide* (SOS)	Face to face	3 months	Ninth-grade students from technical schools	United States
8	Schilling et al. (2014)				Students from fifth to eighth grade of elementary education	
9	Aseltine Jr. et al. (2007)				High school students	
10	Aseltine Jr. and DeMartino (2004)				High school students	
11	Johnson and Parsons (2012)	*Question Persuade Refer (QPR) Suicide Prevention Program*	Face to face and online (post-training)	Mean of 2.7 sessions, between 12 and 16 hours in total	Staff from an elementary and high school	United States
12	Wyman et al. (2008)	*Question Persuade Refer (QPR) Suicide Prevention Program*	Face to face	6 to 8 hours of training	Elementary and high schools staff	United States
13	King et al. (2011)	*Surviving the Teens® Suicide Prevention and Depression Awareness Program*	Face to face	4 sessions of 50 minutes	High school students	United States
14	Wyman et al. (2010)	*Sources of Strength*	Face to face	Not reported	High school students	United States
15	Ciffone (2007)	*SEHS Suicide Prevention Program*	Face to face	· Approximately 6 months · 3 meetings of 50 minutes each	High school students	United States

Table 1

Authors, year of publication, program name, format, and duration, participants, and country of application (conclusion)

	Authors (year)	Name of the prevention program	Format	Duration	Participants	Country of application
16	Orbach and Bar-Joseph (1993)	Questionnaire (with open questions)	Face to face	7 weekly meetings lasting two hours each	High school students	Israel
17	Zachariah et al. (2018)	*Support, Appreciate, Listen Team (SALT) based Suicide Prevention Peer Education Program on Peer Educators*	Face to face	45-minute meetings for 8 months	Students aged from 12 to 15 years and parents	India
18	Gijzen et al. (2018)	*Multimodal Stepped-prevention Program*	Face to face and online	Up to 24 months	Students aged from 11 to 15 years	Netherlands
19	Tsong et al. (2018)	*Peer-to-peer and Gatekeeper Suicide Prevention Program*	Face to face	Workshops of 60 to 90 minutes, during four semesters	Undergraduate and graduate students	United States
20	Strunk et al. (2014)	*Surviving the Teens® Program*	Face to face	4 days	High school students	United States
21	Tompkins et al. (2010)	*Gatekeeper* Suicide Prevention Program*	Face to face	3 months	Rural school staff	United States
22	Tompkins and Witt (2009)	*Gatekeeper Training Program*	Face to face	Not reported	University students	United States
23	Portzky and Heeringen (2006)	Psycho-Educational Prevention Program	Face to face	Not reported	High school students	Belgium
24	Kalafat and Ryerson (1999)	*Adolescent Suicide Awareness Program* (ASAP)	Face to face and sending of letters	Meetings of 30 to 180 minutes	Students aged from 12 to 17 years	United States
25	Samuolis et al. (2020)	*Question Persuade Refer (QPR) Suicide Prevention Program*	Face to face	8 meetings	Undergraduate students	United States
26	Ross et al. (2021)	*Gatekeeper Training Program*	Face to face	One 90-minute meeting	Undergraduate students and university staff	United States

Note. Gatekeepers are people who can recognize and refer people at risk of suicide (Tompkins et al., 2010).

As shown in Table 1, two studies (7.7%) from the 1990s were identified, eight (30.8%) from the years between 2000 and 2010 and 16 (61.5%) between 2011 and 2021. Most of the programs (n = 18; 69.2%) were applied in the United States, with a few being identified in Asia (n = 3; 11.5%), Europe (n = 2; 7.7%), Oceania (n = 2; 7.7%) and South America (n = 1; 3.9%).

In relation to the public for whom the programs were intended, the fact that all the proposals were aimed at the school context stands out. The majority were aimed at high school (n = 10; 38.5%), elementary II (n = 3; 11.5%), university (n = 5; 19.2%) and elementary/high school (n = 2; 7.7%) students. In addition, some programs were aimed at students and

school staff (e.g. teachers, inspectors, among others; *n* = 3; 11.5%), school staff only (*n* = 2; 7.7%) and students, their parents and school staff (*n* = 1; 3.9%).

There were several suicide prevention programs, although some of them were applied in more than one study, such as *Signs of Suicide* (*n* = 4; 15.4%), *safeTALK* (*n* = 2; 7.7%), and the *Question Persuade Refer (QPR) Suicide Prevention Program* (*n* = 4; 15.4%). There was also a great variation in the duration of the interventions, with some lasting for months, while others lasted a few weeks or more focused meetings, which lasted just a few hours.

Another highlight is the fact that most of the programs were carried out face to face (*n* = 17; 65.4%), followed by programs in formats that mixed in-person and online meetings (*n* = 7; 26.9%) and online only (*n* = 1; 3.9%). The work of Kalafat and Ryerson (1999) was also identified, which initially used the in-person format, with the post-test (follow-up) evaluations carried out through letters. It is important to emphasize that this is a publication from the 1990s, and the use of letters is justified due to the absence of evolved computer systems like those of today.

Next, Table 2 is presented, which describes in detail the stages of the programs. The 18 types of interventions included in the final synthesis will be presented considering the target audience (definition of the participants), materials (instruments used), and skills offered (constructs covered).

Table 2

Prevention program and description of steps

	Name of the prevention program	Stages
1	*safeTALK*	A mixed questionnaire that included knowledge, confidence, willingness, probability of seeking help, and provision of help in relation to suicide, applied in three stages: a) before training (time 1); b) during training (time 2); and c) four weeks after training (time 3). The training, conducted by instructors and advisors available to help students, included presentations, videos, and discussions on the topic. At the end of the training, participants were provided with a pocket card with suicide alert steps (an information card on possible signs of suicidal ideation).
2		
3	*Brief Suicide Prevention Program for College Campuses*	1) Pre-test: evaluate the behavior of the gatekeepers in the last three months; participants were assessed for knowledge and self-efficacy regarding suicide. 2) Intervention with self-report measures and didactic and experimental components. 3) Post-test: after three months, participants were contacted by email to respond to a survey. The didactic component consisted of education on the prevalence of suicide, risk factors, warning signs, myths, and campus resources. Facilitators provided participants with education on how to ask suicide questions and refer students to obtaining resources (information about specific decisions that could be made, based on scripts). The experimental exercises aimed to increase empathy and practice gatekeeper skills (active listening, gathering information on warning signs and risk factors, and referral of the students).
4	*Red para la Atención y Derivación de Adolescentes em Riesgo suicida* (RADAR)	1) Training for the school community in the detection and management of adolescents at risk through a gatekeeper. 2) Referral of detected cases to emergency services within 24 hours and to psychiatrists between one and seven days, according to a scale that screens the risk. 3) Application of screening instruments to assess suicide risks every three to six months. 4) Training for health service professionals (emergency) in consultation with a specific protocol. 5) Coordination of the operation of all components and monitoring of the cases detected by a general coordinator of the network. Adolescents answered online some instruments and open questions about suicide.
5	*Kognito*	Composed of several separate online training modules designed to train students, faculty, and staff through animated interactions with virtual human characters exhibiting signs of psychological distress (www.kognito.com). Users develop skills during training by practicing suicide communication in realistic role-play scenarios with virtual avatars. The modules are available in one version for students and another for faculty and staff.
6	Not reported	The program has three following modules: 1) suicide prevention lecture; 2) group discussion about friendship; and 3) training for peer support skills.
7	*Signs of Suicide* (SOS)	Two components: 1) Set of teaching materials that include a video and a discussion guide. The video includes reports and dramatizations about depressive symptoms and suicidal behaviors, as well as interviews with people who have lived with people who have committed suicide. 2) Screening instruments to assess the potential risk of depression and suicide (pre- and post-intervention).
8		
9		
10		

Table 2

Prevention program and description of steps (continue)

	Name of the prevention program	Stages
11		1) Training for school professionals (administrators, teachers, educational assistants, transport staff, custodian staff, food service staff) and provision of a guide to putting the training into practice through: · Lectures with information about suicide and how to work with potentially suicidal students. After the lectures, participants played situations that might arise at school and asked questions; · A suicide prevention booklet and a card were provided. The booklet contained basic information on suicide prevention, such as information on national resources for suicide prevention. The card contained information about prevention and local resources. 2) Subsequent follow-up: months after the training, participants were invited to do training updates online of approximately 30 minutes.
12	*Question Persuade Refer (QPR) Suicide Prevention Program*	
13	*Surviving the Teens® Suicide Prevention and Depression Awareness Program*	1) Pre-test: the day before the training, instruments were applied to identify behaviors and thoughts related to suicide and self-efficacy. The parents and guardians of those who indicated having suicidal behavior in the response period were contacted for the necessary measures and support for the student. 2) Intervention: 50-minute sessions were held to help participants develop knowledge and strategies regarding suicidal behaviors and thoughts (their own and of others). 3) Post-test: the same instruments applied in the pre-test were applied again. 4) Follow-up: three months after completion of the program, students were followed for three months in their respective schools.
14	*Sources of Strength*	Phase 1: School and community preparation. Training of team members as adult counselors who would guide peer leaders in delivering safe suicide prevention messages, with a time frame of four to six hours. Phase 2: training of peer leaders. Approximately four hours of interactive training between adult counselors, peer leaders, and certified trainers. Phase 3: Messages throughout the school. Encouragement for the dissemination of Sources of Strength* through presentations, public service announcements, video or text messages on websites and social media. Phase 4: Post-test. A follow-up was performed three months after.
15	*SEHS Suicide Prevention Program*	1) Written intervention policies for all students. 2) Freshman orientation presentations by a school social worker to ninth-grade students to reduce access barriers and encourage self and peer referrals to the school social worker. 3) Easy access to school social workers on-site from September to June for assessment, intervention, and referral. 4) Structured classroom discussions about health, mental illness, and suicide in all high school grades (experimental and control groups split to assess effectiveness). 5) Prevention information materials for distribution to all students (three days of training with video presentations, guided discussions, and distribution of fact sheets). 6) Formal and informal prevention assessments (questionnaires). 7) Follow-up screening mechanism for students with suicidal attitudes. 8) Intervention with at-risk students and post-intervention component to be used after any student death (post-test after 21 days).

Table 2

Prevention program and description of steps (continue)

	Name of the prevention program	Stages
16	Questionnaire with open questions	1) Initially, a seven-week training course was performed with school counselors/psychologists, in order to explain the intervention project, as well as to exchange experiences and feelings related to suicide and help students with their difficulties when conducting the workshops. 2) One week before starting the intervention program, the school counselor/psychologist administered a sociodemographic questionnaire and other scales – suicidal tendency, hopelessness, ego identity, coping. 3) During the seven weeks, the students were provided with a space in which they could talk about and share emotional experiences, as well as find ways to seek help for themselves and for others. 4) After this period of seven weeks, the scales were reapplied, in addition to a project evaluation questionnaire.
17	*'Support, Appreciate, Listen Team' (SALT)-Based Suicide Prevention Peer Education Program on Peer Educators*	1) Initially, teams of high school students were trained to hold meetings with other students. 2) Semi-structured interviews, questionnaires, and conversation circles were used. 3) The contents covered were social, emotional, cognitive, behavioral, and attitudinal aspects. 4) The strategies were applied in four modules (theory, the role of the peer educator, self-care, active listening and anguish/comprehension of feelings).
18	Multimodal Stepped-Prevention Program	1) Screening with subsequent clinical evaluation and/or referral (depression and suicide questionnaires). 2) Gatekeeper training (QPR) for mentors. 3) Universal prevention focused on reducing stigma (activities recorded and broadcast in online format). 4) Identification of adolescents with increased signs of the most important risk factor and suicidal behaviors (these students participated in eight activities based on cognitive-behavioural therapy [CBT]).
19	Peer-to-peer and Gatekeeper Suicide Prevention Program	1) Training to form gatekeepers from the QPR program, this being a gatekeeper training program dedicated to teaching people in close contact with at-risk populations how to recognize suicide warning signs, offer hope to a suicidal individual, and offer help; 2) workshops for students who were screened at risk of suicide using questionnaires; 3) workshop contents: national and campus-specific statistics on university student suicide; myths and facts about suicide; risk and protective factors and warning signs; information about campus and local mental health resources; and strategies used to question, persuade and refer individuals at risk to the appropriate services.

Table 2

Prevention program and description of steps (continue)

	Name of the prevention program	Stages
20	Surviving the Teens® Program	1) Program based on self-efficacy beliefs through mastery experiences, vicarious experiences, social persuasion, and reaction stress reduction. 2) Students were taught to manage their emotions and stress reactions through problem-solving, cognitive restructuring, and using relaxation techniques. 3) Students were offered opportunities to practice these skills through various role-play scenarios over the two days of the program. 4) Ideal program for students at risk of suicide. 5) Some general objectives of the program include: increasing help-seeking behaviors among troubled youths and their peers; increasing the family and school connections; decreasing suicidal behaviors and other risky behaviors, such as the use of illegal drugs and alcohol; and improving students' coping skills.
21	Gatekeeper Suicide Prevention Program	1) Training to form gatekeepers through the QPR program, a gatekeeper training program dedicated to teaching people in close contact with at-risk populations how to recognize suicide warning signs, offer hope to a suicidal individual and offer help. 2) Provision of workshops for students who were considered at risk of suicide due to the questionnaires' answers. 3) Workshop contents: national and specific statistics on school student suicide; risk and protective factors and warning signs; information about school and local mental health resources; and strategies used to question, persuade, and refer individuals at risk to the appropriate services.
22	*Gatekeeper Training Program*	1) Training to form gatekeeper through the QPR program, a gatekeeper training program dedicated to teaching people in close contact with at-risk populations how to recognize suicide warning signs, provide hope to a suicidal individual and offer help. 2) Some university students were trained to act as gatekeepers.
23	*Psycho-Educational Prevention Program*	1) Initially, instruments were applied to assess the risk and level of suicide among the students. 2) The prevention program was didactically presented to students by a psychologist from the Suicide Research Unit. 3) The entire program included a meeting of approximately two hours. After the program was implemented, there was the possibility to ask questions. 4) The first two components of the program were developed to increase knowledge and adaptive attitudes. The last part of the program is designed to have an impact on coping behavior and levels of hopelessness. 5) Explanations about possible causes and risk factors for suicide were provided. 6) Students were taught how to recognize verbal and behavioral signs of suicide and depression and how to respond to these signs.

Table 2

Prevention program and description of steps (conclusion)

	Name of the prevention program	Stages
24	*Adolescent Suicide Awareness Program* (ASAP)	1) Training for school staff (teachers, students, support staff, cafeteria employees, bus drivers etc.) regarding the knowledge, skills, and resources to identify young people with suicide problems. 2) Training for some parents. 3) Guaranteeing that members of the school community have the necessary skills, structure, and support to respond effectively to at-risk or suicidal youths. 4) Increasing the likelihood that young people who come into contact with troubled peers will respond with empathy and seek help from adults for them and that troubled youths will be more likely to seek help from adults. 5) School adults will be better prepared (have the willingness, knowledge, skills, and resources) to respond appropriately to at-risk students. 6) Community services and schools will collaborate to establish guidelines for managing young people with suicidal ideation and suicide attempters. 7) After a few months, the adolescent is contacted for a follow-up (this description mixes the program proposal with results and/or expectations).

Note. **The Sources of Strength* program builds on a school-based suicide prevention approach designed to create protective socio-ecological influences on the students.

Among the suicide intervention projects, some audiences were the focus, including students, school staff, or mixed (students and staff). Most of the interventions were proposed for mixed audience (*n* = 11; 42.4%), including guidance for students and staff and training for the professionals. For example, the *Question Persuade Refer (QPR) Suicide Prevention Program* is intended to teach and train all professionals in the school (administrators, teachers, educational assistants etc.) and provide educational lectures for students.

Other intervention programs were focused only on students (*n* = 5; 27.8%), such as the *Surviving the Teens® Program*, with the aim of training emotional skills in young people at school. Finally, a few focused only on staff (*n* = 3; 16.7%); such as the Sources of Strength program, which aims to prepare professional members to act in the prevention of suicide in the school community.

Diverse materials, instruments, and techniques were used in these interventions. One of the most used strategies was the training of gatekeepers (*n* = 7; 26.9%), who are people trained to act in the recognition of at-risk individuals and, then, refer them to a specialized service, as mentioned by Tompkins et al. (2010). There was also the use of a questionnaire and tests to assess the level of suicidal behavior in students (*n* = 6; 33.3%). In some publications, it was not clear which instruments were used to carry out this screening assessment. Another interesting mechanism employed in several prevention programs (*n* = 6; 33.3%) was the use of a follow-up and/or post-test, to check whether the students had a decrease in suicidal behavior. Various tools were used for this, with the application of psychological instruments, an information questionnaire, or even a follow-up by e-mail, to observe the student's improvement. This post-test was carried out between 21 and 120 days after the end of the program.

All the interventions used media content (videos, slides, films etc.) and/or lectures with the aim of training or providing educational information for the professionals and students. Only one study used a fully online program – *Kognito*, a platform in which the user (student or school employee) learns about the universe of suicide prevention from recorded audiovisual modules.

Among the constructs addressed and skills taught in the intervention programs, all worked with the content of suicide prevention, linking it with mental health. Some interventions went beyond the content of prevention and information about suicidal behavior in the school population. More than half of the interventions addressed several constructs, such as hopelessness, identity, coping, self-efficacy, family relationships, social support, support networks, and the help of parents during the interventions. The use of cognitive-behavioral psychology approaches was evident in two studies.

In addition to the theoretical and informative part, the psychoeducation technique was present in some lectures of the programs. Didactic strategies (*safeTALK*) were also implemented in some situations, based on the use of information cards, which could be taken away by the students. These cards served as brief information and alerts so that the student could

notice possible signs of suicide risk. In some more robust interventions, there was a more complex preparation, both for the students and for the school community, taking into account the information and the importance of working with the assumptions of mental health prevention, interconnected with various constructs, mentioned above.

Discussion

The aim of this literature review was to conduct an investigation of the literature and detail the suicide prevention programs in the PubMed, PsycInfo, and ScienceDirect databases. The main characteristics were the year of publication, program name, format (e.g., in person or online) and duration, target audience, and country of application. In a second part, the aim was to describe the main initiatives and strategies used by each program. Two aspects guided the focus of the article: firstly, the authors did not find any international studies with the aim of describing the various interventional programs (Katz et al., 2013); and, secondly, identifying the main programs existing in the world could help healthcare providers, in various contexts, to develop and improve initiatives directed towards the prevention of suicidal behavior, since suicide is currently one of the main public health problems (Jacob, 2016).

The results show that, over the years, there has been an increase in the number of proposals for preventive programs, largely due to the initiatives of the WHO (WHO, 2014) for the prevention of suicide in various countries. Another reason that may explain the increase in literature on the subject is the fact that preventive programs are effective in combating suicide attempts and suicides (Turecki & Brent, 2016), with positive impacts in different areas of people's lives, such as family, social and economic life, mental health, among others (Stone et al., 2017).

Most of the publications took place in the United States, with only one carried out in South America. Accordingly, it must be considered that the implementation of suicide prevention programs requires the presence of financial resources, trained healthcare providers, and well-established public health policies (Mascayano et al., 2015). These characteristics, allied with the countries' level of adherence to the WHO's prevention programs (WHO, 2014) could explain the fact that the United States conduct more research than the developing countries of South America.

The format of the programs also seems to be face to face mostly. However, the use of remote media has been growing, and, probably, after the coronavirus disease 2019 (Covid-19) pandemic, it will increase even more. There is a projected increase in mental health problems and, consequently, an increase in post-pandemic suicide rates. Furthermore, social isolation should encourage the development of virtual platforms for prevention, as pointed out by Gunnell et al. (2020). Therefore, programs developed entirely for the internet are already being tested (van Spijker et al., 2010), demonstrating a reduction in the frequency and intensity of suicidal behaviors.

The programs found in this study were specific to educational environments, with a focus on students and educational institutions (Cusimano & Sameem, 2011; Katz et al., 2013; Robinson et al., 2013; Zalsman et al., 2016). However, it is considered important that other age groups (adults and older adults) and different contexts, such as workplaces (especially those linked to the health area) and communities (rest homes and nursing homes for older adults), be taken into account in the development of suicide prevention programs, with a view to reducing the incidence of the phenomenon more effectively (Turecki & Brent, 2016). As national statistics highlight, for example, the rates of attempts and suicides among older adults have been worrying, reaching 8.9 people per 100,000 inhabitants, a rate much higher than that currently observed in the general population – 6 per 100,000 (WHO, 2017).

A wide range of programs was observed: from those with a short duration and specific focus (Katsumata et al., 2017) to others that are much more comprehensive in terms of training people directly or indirectly involved with the problem (e.g., school bus drivers) and of longer duration (Kalafat & Ryerson, 1999). In this sense, as the WHO emphasizes, suicide is highly preventable, however, the development of a suicide prevention program must involve several actors, in addition to multisectoral and multidisciplinary collaboration, with evaluation of services, continuous training of personnel, data integration, and integrated public health policies (WHO, 2014).

Several focuses were found, and in some the most common aim was the detection of people with high self-efficacy in suicide and the presence of risk factors and associated mental illnesses (e.g., depression), with the use of constructed questionnaires and scales suitable for this detection (e.g., depression, suicidal ideation, coping, and self-efficacy scales). Others were much broader and had different focuses, such as training people to identify and support students with a suicidal ideation profile, concern with family/school cohesion, or the reduction of stigma (Gijzen et al., 2018; Portzky & Heeringen, 2006). Many of the programs invested in the strategy of training students, teachers, and school employees to the detection of signs of suicidal ideation expressed by students, which seems to be one of the main methodologies developed. The so-called gatekeepers seems to be an important strategy in schools, as students end up having greater access to their peers, who become a reference when they need help.

This strategy can also be used in other contexts and appears to be quite functional. For example, training nurses in detecting signs of suicidal ideation in hospital settings has increased the detection of patients with these characteristics and, subsequently, their referral to counseling services (Tsai et al., 2010).

Another aspect widely used in the programs was the training of socio-emotional skills, including empathy training, discussion groups about friendships, a tutorial for senior university students regarding freshmen, training in social integration and social and family support (Ciffone, 2007; Katsumata et al., 2017; Strunk et al., 2014; Zinzow et al., 2020). As

highlighted by Miller et al. (2014), family and friends seem to be important mediators in preventing the development of mental disorders (e.g., depression) and suicidal ideation, with socio-emotional skills also playing an important role in prevention. For example, Sánchez-Teruel and Robles-Bello (2014) found several socio-emotional cognitive, affective, and behavioral variables related to resilience in suicide, including self-regulation and cognitive flexibility, self-image, positive attribution style, self-control, gratitude, perseverance, impulse control, ability to ask for help in critical moments, expressiveness of emotions, sense of humor, empathy, seeking meaning in life and reasons to live. Likewise, from an ecological perspective, the authors also cited social and family support, feelings of belonging, social activism, and access to health services as some of the most important variables.

Several didactic strategies were adopted in the different programs, such as the development of booklets and information cards, discussion of the theme via groups, role-playing, psychoeducation, lectures, and workshops (Johnson & Parsons, 2012; Rein et al., 2018). Specific training (e.g., persuasion by the gatekeepers in order to make the ideation holder to seek help) and the use of some techniques (e.g., cognitive restructuring, problem-solving, and relaxation) (Orbach & Bar-Joseph, 1993; Strunk et al., 2014) were also found. Other suicide prevention programs demonstrated the importance of counselors within schools, as well as peer educators (Zachariah et al., 2018), a school culture that is present in some countries.

The use of various teaching methods and techniques that are well documented can be useful tools in suicide prevention programs, including their use in parallel with drug interventions (Ougrin et al., 2015). The study of the effectiveness of different programs may be a next step in the course of this research, however, as Balaguru et al. (2013) emphasize, such a comparison seems to be a very difficult and broad objective since the programs are highly complex and they work at different levels of ecological action (e.g., personal, relational, and microcultural levels).

It is important to remember that the aim of this study was to carry out a literature analysis in international databases, which can disregard several initiatives that occur without being published in scientific databases. The use of other keywords in the search could also reveal other initiatives. Furthermore, the gray literature was not consulted, and there may be several other initiatives and other prevention programs in this type of material. Finally, no article of origin and/or with data from Brazil was found during the review of the articles. This result does not mean that the initiatives in the country are non-existent, therefore a necessary next step (in a new future study) would be to carry out a similar search procedure in national databases, in order to identify national initiatives and/or compare international and national programs.

Final considerations

Overall, the results of the current study indicate some conclusions. Among the main ones, it can be seen that: 1. the number of publications on intervention programs in the international literature (in the evaluated databases) has been growing chronologically, in North America, specifically in the United States, the country where most articles were published on this topic; 2. most prevention programs adopted a hybrid format in the evaluation and intervention processes, mixing face-to-face and remote activities, however, totally remote programs are emerging, which will probably be very useful in this area, especially during a pandemic period; 3. all programs found were aimed at school environments, at various levels of education and age groups, which demonstrates that the school/university can be fundamental, as it brings together elements that are conducive to intervention (e.g., a controlled environment, with scheduled activities), however, there is also a need to develop intervention programs aimed at other environments, contexts and age groups (e.g., labor organizations, health environments, older adults); 4. there was a wide variation in the programs regarding their scope, objectives, focus, duration and breadth, with the programs varying from a few hours to weeks, focusing only on the individual with ideation and/or the social group (school, staff), development of specific skills in the individual with ideation and/or relationship skills among students, assistance with information on how and where to seek help; 5. various strategies/techniques and measures were used in the different programs, such as videos and discussions on the subject, role-playing, active listening, cards with information on suicide prevention, peer support training, self-report and associated risk factor measures (self-efficacy for suicide, empathy, communication, coping, hopelessness, self-regulation), semi-structured interviews, with several programs using gatekeepers as a strategy for the detection and referral to specialized services of students at high risk for suicide, besides programs to strengthen bonds between students (e.g., freshmen and senior university students).

References

Arensman, E. (2017). Suicide prevention in an international context: Progress and challenges (editorial). *Crisis*, *38*(1), 1–6. https://doi.org/10.1027/0227-5910/a000461

Aseltine Jr., R. H., & DeMartino, R. (2004). An outcome evaluation of the SOS Suicide Prevention Program. *American Journal of Public Health*, *94*(3), 446–451. https://doi.org/10.2105/ajph.94.3.446

Aseltine Jr., R. H., James, A., Schilling, E. A., & Glanovsky, J. (2007). Evaluating the *SOS* suicide prevention program: A replication and extension. *BMC Public Health*, *7*(161), 1–7. https://doi.org/10.1186/1471-2458-7-161

Bailey, E., Spittal, M. J., Pirkis, J., Gould, M., & Robinson, J. (2017). Universal suicide prevention in young people. *Crisis*, *38*(5), 300–308. https://doi.org/10.1027/0227-5910/a000465

Balaguru, V., Sharma, J., & Waheed, W. (2013). Understanding the effectiveness of school-based interventions to prevent suicide: A realist review. *Child and Adolescent Mental Health*, *18*(3), 131–139. https://doi.org/10.1111/j.1475-3588.2012.00668.x

Bustamante, F., Urquidi, C., Florenzano, R., Barrueto, C., Hoyos, J., Ampuero, K., Terán, L., Figueroa, M. I., Farías, M., Rueda, M. L., & Giacaman, E. (2018). El programa RADAR para la prevención del suicidio en adolescentes de la región de Aysén, Chile: Resultados preliminares. *Revista Chilena de Pediatría*, *89*(1), 145–148. https://doi.org/10.4067/S0370-41062018000100145

Ciffone, J. (2007). Suicide prevention: An analysis and replication of a curriculum-based high school program. *Social Work*, *52*(1), 41–49. https://doi.org/10.1093/sw/52.1.41

Cusimano, M. D., & Sameem, M. (2011). The effectiveness of middle and high school-based suicide prevention programmes for adolescents: A systematic review. *Injury Prevention*, *17*(1), 43–49. https://doi.org/10.1136/ip.2009.025502

Dantas, A. P., Azevedo, U. N., Nunes, A. D., Amador, A. E., Marques, M. V., & Barbosa, I. R. (2018). Analysis of suicide mortality in Brazil: Spatial distribution and socioeconomic context. *Brazilian Journal of Psychiatry*, *40*(1), 12–18. https://doi.org/10.1590/1516-4446-2017-2241

Departamento de Informática do Sistema Único de Saúde – DATASUS. (2019). http://datasus.saude.gov.br/

Gijzen, M. W. M., Creemers, D. H. M., Rasing, S. P. A., Smit, F., & Engels, R. C. M. E. (2018). Evaluation of a multimodal school-based depression and suicide prevention program among Dutch adolescents: Design of a cluster-randomized controlled trial. *BMC Psychiatry*, *18*(124), 1–12. https://doi.org/10.1186/s12888-018-1710-2

Gunnell, D., Appleby, L., Arensman, E., Hawton, K., John, A., Kapur, N., Khan, M., O'Connor, R. C., Pirkis, J., & COVID-19 Suicide Prevention Research Collaboration. (2020). Suicide risk and prevention during the COVID-19 pandemic. *The Lancet Psychiatry*, *7*(6), 468–471. https://doi.org/10.1016/s2215-0366(20)30171-1

Jacob, K. S. (2016). Reducing suicide rates: Need for public health and population interventions. *Indian Journal of Psychological Medicine*, *38*(6), 510–513. https://doi.org/10.4103/0253-7176.194915

Johnson, L. A., & Parsons, M. E. (2012). Adolescent suicide prevention in a school setting: Use of a gatekeeper program. *NASN School Nurse*, *27*(6), 312–317. https://doi.org/10.1177/1942602X12454459

Kalafat, J., & Ryerson, D. M. (1999). The implementation and institutionalization of a School-Based Youth Suicide Prevention Program. *Journal of Primary Prevention*, *19*(3), 157–175. https://doi.org/10.1023/A:1022658826641

Katsumata, Y., Narita, T., & Nakagawa, T. (2017). Development of a suicide prevention education program for university students: A single-arm pilot study. *Asian Journal of Psychiatry, 30*, 190–191. https://doi.org/10.1016/j.ajp.2017.10.019

Katz, C., Bolton, S.-L., Katz, L. Y., Isaak, C., Tilston-Jones, T., Sareen, J., & Swampy Cree Suicide Prevention Team. (2013). A systematic review of school-based suicide prevention programs. *Depression and Anxiety*, *30*(10), 1030–1045. https://doi.org/10.1002/da.22114

Kinchin, I., Russell, A. M. T., Petrie, D., Mifsud, A., Manning, L., & Doran, C. M. (2019). Program evaluation and decision analytic modelling of universal suicide prevention training (safeTALK) in secondary schools. *Applied Health Economics and Health Policy*, *18*(2), 311–324. https://doi.org/10.1007/s40258-019-00505-3

King, K. A., Strunk, C. M., & Sorter, M. T. (2011). Preliminary effectiveness of Surviving the Teens® Suicide Prevention and Depression Awareness Program on adolescents' suicidality and self-efficacy in performing help-seeking behaviors. *Journal of School Health*, *81*(9), 581–590. https://doi.org/10.1111/j.1746-1561.2011.00630.x

Malhi, G. S., Outhred, T., Das, P., Morris, G., Hamilton, A., & Mannie, Z. (2018). Modeling suicide in bipolar disorders. *Bipolar Disorders*, *20*(4), 334–348. https://doi.org/10.1111/bdi.12622

Mann, J. J., Apter, A., Bertolote, J., Beautrais, A., Currier, D., Haas, A., Hegerl, U., Lonnqvist, J., Malone, K., Marusic, A., Mehlum, L., Patton, G., Phillips, M., Rutz, W., Rihmer, Z., Schmidtke, A., Shaffer, D., Silverman, M., Takahashi, Y., ... Hendin, H. (2005). Suicide prevention strategies: A systematic review. *JAMA*, *294*(16), 2064–2074. https://doi.org/10.1001/jama.294.16.2064

Mascayano, F., Irrazabal, M., Emilia, W. D., Vaner, S. J., Sapag, J. C., Alvarado, R., Yang, L. H., & Sinah, B. (2015). Suicide in Latin America: A growing public health issue. *Revista de la Facultad de Ciencias Médicas de Córdoba*, *72*(4), 295–303. https://pubmed.ncbi.nlm.nih.gov/27107280/

Miller, A. B., Adams, L. M., Esposito-Smythers, C., Thompson, R., & Proctor, L. J. (2014). Parents and friendships: A longitudinal examination of interpersonal mediators of the relationship between child maltreatment and suicidal ideation. *Psychiatry Research, 220*(3), 998–1006. https://doi.org/10.1016/j.psychres.2014.10.009

Orbach, I., & Bar-Joseph, H. (1993). The impact of a suicide prevention program for adolescents on suicidal tendencies, hopelessness, ego identity, and coping. *Suicide and Life-Threatening Behavior*, *23*(2), 120–129. https://psycnet.apa.org/record/1994-03682-001

Ougrin, D., Tranah, T., Stahl, D., Moran, P., & Asarnow, J. R. (2015). Therapeutic interventions for suicide attempts and self-harm in adolescents: Systematic review and meta-analysis. *Journal of American Academy of Child & Adolescent Psychiatry*, *54*(2), 97–107.e2. https://doi.org/10.1016/j.jaac.2014.10.009

Page, M. J., Mckenzie, J. E., Bossuyt, P. M., Boutron, I., Hofmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., & Moher, D. (2021). Updating guidance for reporting systematic reviews: Development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology*, *134*, 103–112. https://doi.org/10.1016/j.jclinepi.2021.02.003

Portzky, G., & Heeringen, K. V. (2006). Suicide prevention in adolescents: A controlled study of the effectiveness of a school-based psycho-educational program. *The Journal of Child Psychology and Psychiatry*, *47*(9), 910–918. https://doi.org/10.1111/j.1469-7610.2006.01595.x

Rein, B. A., McNeil, D. W., Hayes, A. R., Hawkins, T. A., Ng, M., & Yura, C. A. (2018). Evaluation of an avatar-based training program to promote suicide prevention awareness in a college setting. *Journal of American College Health*, *66*(5), 401–411. https://doi.org/10.1080/07448481.2018.1432626

Robinson J., Cox, G., Malone, A., Williamson, M., Baldwin, G., Fletcher, K., & O'Brien, M. (2013). A systematic review of school-based interventions aimed at preventing, treating, and responding to suicide-related behavior in young people. *Crisis The Journal of Crisis Intervention and Suicide Prevention*, *34*(3), 1–19. https://doi.org/10.1027/0227-5910/a000168

Ross, S. G., DeHay, T., & Deiling, M. (2021). The suicide prevention for college student gatekeepers program: A pilot study. *Crisis The Journal of Crisis Intervention and Suicide Prevention*, *42*(1), 48–55. https://doi.org/10.1027/0227-5910/a000686

Sánchez-Teruel, D., & Robles-Bello, M. A. (2014). Factores protectores que promueven la resiliencia ante el suicidio en adolescentes jóvenes. *Papeles del Psicólogo*, *35*(2), 181–192. https://www.papelesdelpsicologo.es/pdf/2438.pdf

Samuolis, J., Harrison, A. J., & Flanagan, K. (2020). Evaluation of a peer-led implementation of a suicide prevention gatekeeper training program for college students. *Crisis The Journal of Crisis Intervention and Suicide Prevention*, *41*(5), 331–336. https://doi.org/10.1027/0227-5910/a000638

Schilling, E. A., Aseltine Jr., R. H., & James, A. (2016). The SOS Suicide Prevention Program: Further evidence of efficacy and effectiveness. *Prevention Science*, *17*(2), 157–166. https://doi.org/10.1007/s11121-015-0594-3

Schilling, E. A., Lawless, M., Buchanan, L., & Aseltine Jr., R. H. (2014). "Signs of suicide" shows promise as a middle school suicide prevention program. *Suicide and Life-Threatening Behavior*, *44*(6), 653–667. https://doi.org/10.1111/sltb.12097

Silva, B. F. A., Prates, A. A. P., Cardoso, A. A., Castro, N. G. M. B. R., & Rosas, N. (2018). O suicídio no Brasil contemporâneo. *Sociedade e Estado*, *33*(2), 565–579. https://doi.org/10.1590/s0102-699220183302014

Stone, D. M., Holland, K. M., Bartholow, B., Crosby, A. E., Davis, S., & Wilkins, N. (2017). *Preventing suicide: A technical package of policies, programs, and practices*. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

Strunk, C. M., King, K. A., Vidourek, R. A., & Sorter, M. T. (2014). Effectiveness of the Surviving the Teens® Suicide Prevention and Depression Awareness Program: An impact evaluation utilizing a comparison group. *Health Education & Behavior*, *41*(6), 605–613. https://doi.org/10.1177/1090198114531774

Tompkins, T. L., & Witt, J. (2009). The short-term effectiveness of a suicide prevention gatekeeper training program in a college setting with residence life advisers. *The Journal of Primary Prevention*, *30*, 131–149. https://doi.org/10.1007/s10935-009-0171-2

Tompkins, T. L., Witt, J., & Abraibesh, N. (2010). Does a gatekeeper suicide prevention program work in a school setting? Evaluating training outcome and moderators of effectiveness. *Suicide and Life-Threatening Behavior*, *40*(5), 506–515. https://doi.org/10.1521/suli.2010.40.5.506

Tsai, W.-P., Lin, L.-Y., Chang, H.-C., Yu, L.-S., & Chou, M.-C. (2010). The effects of the gatekeeper suicide-awareness program for nursing personnel. *Perspectives in Psychiatric Care*, *47*(3), 117–125. https://doi.org/10.1111/j.1744-6163.2010.00278.x

Tsong, Y., Young, J. T., Killer, J. D., Takemoto, M. A., & Compliment, B. (2018). Suicide prevention program on a diverse college campus: Examining the effectiveness of a Peer-to-Peer Model. *Journal of College Student Psychotherapy*, *33*(2), 1–14. https://doi.org/10.1080/87568225.2018.1434716

Turecki, G., & Brent, D. A. (2016). Suicide and suicidal behaviour. *The Lancet*, *387*(10024), 1227–1239. https://doi.org/10.1016/S0140-6736(15)00234-2

van Spijker, B. A. J., van Straten, A., & Kerkhof, A. J. F. M. (2010). The effectiveness of a web-based self-help intervention to reduce suicidal thoughts: A randomized controlled trial. *Trials*, *11*(25), 1–7. https://doi.org/10.1186/1745-6215-11-25

World Health Organization. (2014). *Preventing suicide.* https://apps.who.int/iris/rest/bitstreams/1174021/retrieve

World Health Organization. (2017). *Mental health: New understanding, new hope*. http://www.who.int/whr/2017/en/

Wyman, P. A., Brown, C. H., Inman J., Cross W., Schmeelk-Cone, K., Guo, J., & Pena, J. B. (2008). Randomized trial of a gatekeeper program for suicide prevention: 1-Year impact on secondary school staff. *Journal of Consulting and Clinical Psychology*, *76*(1), 104–115. https://doi.org/10.1037/0022-006X.76.1.104

Wyman, P. A., Brown, C. H., LoMurray, M., Schmeelk-Cone, K., Petrova, M., Yu, Q., Walsh, E., Tu, X., & Wang, W. (2010). An outcome evaluation of the sources of strength suicide prevention program delivered by adolescent peer leaders in high schools. *American Journal of Public Health*, *100*(9), 1653–1661. https://doi.org/10.2105/AJPH.2009.190025

Zachariah, B., Witt, E. E., Bahirat, J. D., Bunders-Aelen, J. F. G., & Regeer, B. J. (2018). What is in it for them? Understanding the impact of a "Support, Appreciate, Listen Team" (SALT)-based suicide prevention peer education program on peer educators. *School Mental Health*, *10*(4), 462–476. https://doi.org/10.1007/s12310-018-9264-5

Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., Carli, V., Höschl, C., Barzilay, R., Balazs, J., Purebl, G., Kahn, J. P., Sáiz, P. A., Lipsicas, C. B., Bobes, J., Cozman, D., Hegerl, U., & Zohar, J. (2016). Suicide prevention strategies revisited: 10-Year systematic review. *The Lancet Psychiatry*, *3*(7), 646–659. https://doi.org/10.1016/S2215-0366(16)30030-X

Zinzow, H. M., Thompsom, M. P., Fulmer, C. B., Goree, J., & Evinger, L. (2020). Evaluation of a Brief Suicide Prevention Training Program for College Campuses. *Archives of Suicide Research, 24*(1), 82-95. https://doi.org/10.1080/13811118.2018.1509749