

School-Based Suicide Prevention through Gatekeeper Training: The Role of Natural Leaders

Deinera Exner-Cortens, Elizabeth Baker, Cristina Fernandez Conde, Marisa Van Bavel, and Mili Roy
University of Calgary

Chris Pawluk
Rocky View Schools, Airdrie, AB

ABSTRACT

One Tier 2 approach to school-based youth suicide prevention is gatekeeper training, where teachers and school staff learn to respond to students in distress. Although promising, implementation-sensitive prevention efforts could be advanced by providing additional training to natural leaders in the school building, so they can support and coach others. The purpose of this study is to describe the development and initial mixed-methods pilot evaluation of a natural leader training to support the real-world implementation of QPR® gatekeeper training, a Tier 2 (selective) intervention. This study underscores the importance of creating implementation approaches to meet the needs of real-world school contexts.

Keywords: suicide prevention, youth, gatekeeper training, implementation

Deinera Exner-Cortens, Department of Psychology, Faculty of Arts, University of Calgary, ORCID: 0000-0003-2021-1350; Elizabeth Baker, Department of Psychology, Faculty of Arts, University of Calgary, ORCID: 0000-0002-4769-2695; Cristina Fernandez Conde, School & Applied Child Psychology, Werklund School of Education, University of Calgary, ORCID: 0000-0001-6421-8816; Marisa Van Bavel, School & Applied Child Psychology, Werklund School of Education, University of Calgary, ORCID: 0000-0002-9038-6423; Mili Roy, Department of Mathematics and Statistics, Faculty of Science, University of Calgary; Chris Pawluk, Rocky View Schools, Airdrie, AB, ORCID: 0000-0001-8319-7838.

Chris Pawluk is now in private practice, Airdrie, AB.

This research was supported in part by funding from PolicyWise (Alberta). Dr. Exner-Cortens' work was also supported by funding from the Alberta Children's Hospital Research Institute (ACHRI) and the Canada Research Chairs Program. We would like to thank the participating schools, youth, and teachers for their contributions to this study. Thank you to the Centre for Suicide Prevention for their expert review of training materials. The larger intervention development team was also integral to the conduct of this project: Noah Boakye-Yiadom, Randy Bottle, Michelle Deen, Teresa Fowler, Shawna Gray, Rebecca Haines-Saah, Angelique Jenney, Emily Matejko, Alan McLuckie, Carly McMorris, Rocio Ramirez Rivera, and Elisabeth Vezina.

Correspondence concerning this article should be addressed to Deinera Exner-Cortens, University of Calgary, Department of Psychology, 2500 University Drive NW, Calgary AB, T2N 1N4, Canada. Email: deinera.exner2@ucalgary.ca

RÉSUMÉ

Une approche de niveau 2 destinée à la prévention du suicide chez les jeunes en milieu scolaire repose sur la formation de personnes-ressources, comme les professeurs et le personnel scolaire, pour leur apprendre à répondre aux étudiants en détresse. Tout en étant prometteurs, les efforts de prévention axés sur la mise en œuvre de cette approche pourraient être améliorés en dispensant une formation supplémentaire aux leaders naturels au sein même de l'école, de manière à accompagner et former d'autres personnes. L'objectif de cette étude est de décrire le développement et l'évaluation pilote initiale type fondée sur des méthodes mixtes de la formation d'un leader naturel pour accompagner l'implantation sur le terrain de QPR® gatekeeper training, une intervention (sélective) de niveau 2. Cette étude souligne l'importance de mettre en place des approches afin de mieux répondre aux besoins sur le terrain en milieu scolaire.

Mots clés : prévention suicide, jeune, formation personne-ressource, implantation

Deaths by suicide are the leading cause of death for children and youth aged 10–14 in Canada, and the second leading cause for those aged 15–24 (Children First Canada, 2021). Because of their frequent access to a broad range of children and youth, schools are a key suicide prevention site (Arango et al., 2021; Pistone et al., 2019). However, knowledge on effective school-based suicide prevention strategies is still emerging (Arango et al., 2021; Robinson et al., 2018; Zalsman et al., 2016). In addition, understanding of real-world implementation strategies for evidence-based suicide prevention approaches is an area in need of research attention. The purpose of this paper is to present the development and initial pilot evaluation of an implementation-sensitive approach to school-based suicide prevention.

School-Based Suicide Prevention

Comprehensive suicide prevention in school settings comprises universal (e.g., psychoeducational), secondary (e.g., gatekeeper training) and tertiary (e.g., screening) approaches (Arango et al., 2021). Within this holistic approach, teachers (and other school staff within the building) play a critical role as frontline prevention supports (Nadeem et al., 2011). Specifically, teachers – and many other school staff, such as those in learning support positions – are in daily contact with students, and thus have multiple opportunities to intervene (Gould et al., 2009; Hatton et al., 2017). Further, since many youth at risk for suicide are reluctant to ask for help (Reis & Cornell, 2008), teachers and other school staff can play an important role in proactive prevention.

However, despite their important role, many school staff have not been trained for what to do when youth make a disclosure, and staff report that they are unsure of their role within suicide prevention (Cross et al., 2011; Freedenthal & Breslin, 2010; Hatton et al., 2017; Westefeld et al., 2007). Although teachers and other school staff desire training to address these gaps (Hatton et al., 2017; Nadeem et al., 2011), many have not received sufficient training (Freedenthal & Breslin, 2010). Training is also vital to prepare school staff to respond to youth experiencing suicidal thoughts and behaviours in ways that are transparent and respect youth agency and choice, while also adhering to school division policies concerning privacy and confidentiality (Brion-Meisels, 2014). As such, training for teachers and other school staff is a vital element of comprehensive school-based suicide prevention.

Gatekeeper Training

The literature on relevant training content for teachers highlights the need to overcome common barriers to their active participation in suicide prevention, including discomfort with helping, not knowing how to ask about suicide, and fear of making the situation worse (Hatton et al., 2017). Related to these training goals, recent systematic reviews of youth suicide prevention have focused on gatekeeper training as a promising preventive intervention for the school setting (Arango et al., 2021; Pistone et al., 2019; Zalsman et al., 2016), with existing evidence demonstrating increases in knowledge, attitudes, and intervention self-efficacy among school staff that participate in this training (Robinson et al., 2013). Research by Katoaka et al. (2007) also found that following referral from a school gatekeeper, more than two-thirds of students accessed mental health services. Finally, from an implementation-sensitive lens, gatekeeper training may be more acceptable to school administrators than more intensive approaches (e.g., screening; Nadeem et al., 2011; Scherff et al., 2005), and ensuring school buy-in is critical for implementation success.

General goals of gatekeeper training are to build knowledge about adolescent suicide; support teachers to understand risk/protective factors and warning signs; and to improve attitudes, comfort, and capacity for teacher intervention (Coleman & Quest, 2015; Robinson et al., 2013). One commonly used brief gatekeeper training program for school personnel is the *Question, Persuade, Refer* (QPR[®]) program (Mo et al., 2018), developed by the QPR Institute. QPR[®] is offered as an ~60-minute online training session. The goal of QPR[®] training is to support school staff to recognize warning signs and learn to ask youth questions about suicide (Question); talk with youth about reaching out for help through the acceptance of a referral (Persuade); and refer the youth to an appropriate resource (Refer; Ghoncheh et al., 2016, p. 2). A systematic review by Zalsman and colleagues (2016) gave QPR[®] an overall Oxford Evidence grade of “1B” (i.e., good evidence based on one strong study by Wyman et al., 2008) for school staff. In this longitudinal, cluster-randomized trial, Wyman and colleagues (2008) found moderate to large increases in knowledge, preparedness, and self-efficacy among teachers who participated in QPR[®] at one-year follow-up as compared to those that did not. Teachers also report finding QPR[®] training helpful and feel it increases confidence, knowledge, and expertise (Reis & Cornell, 2008; Tompkins et al., 2009).

Natural Leaders

Although gatekeeper training is promising as part of comprehensive school-based suicide prevention, the past decade of implementation science demonstrates that brief training is not enough to support many teachers to retain and use skills long-term (Han & Weiss, 2005). Yet, offering more intensive training to all teachers takes time and resources, both of which are consistent implementation barriers in the school setting. From an implementation-sensitive lens – which seeks to embed knowledge of common implementation barriers in design and approach – offering intensive training to all teachers and school staff, while laudable, may be neither feasible nor acceptable in practice. Instead, an implementation-sensitive approach can explore how to strategically leverage existing strengths within a school building to feasibly support implementation for teachers/school staff who need this additional support.

When thinking of what is required to support gatekeeper skill retention specifically, a qualitative study of 45 teachers, administrators, and other school staff by Nadeem and colleagues (2011) found that “many teachers relied heavily on their informal networks of communication, working with their peers and others that

they had a positive experience consulting in the past” (p. 218). Another qualitative study of 44 gatekeepers by Shtivelband et al. (2015) suggests that connecting to a larger social network with other gatekeepers may be key to sustainability of training effects, potentially because of increases to social support and connection to resources. Thus, to supplement all-staff gatekeeper training, Wyman and colleagues (2008) recommend additional “skills training for staff serving as ‘natural gatekeepers’” (p. 104), so that they can coach and support other colleagues. These findings also align with the larger literature on the role of peer opinion leaders in supporting the implementation and sustainment of mental health promotion activities in schools (e.g., Atkins et al., 2008; Exner-Cortens et al., 2022), and past work within Indigenous communities exploring the role of “natural helpers” in suicide prevention (Middlebrook et al., 2001). In sum, from an implementation-sensitive perspective, offering more intensive training to existing sources of support in the school building (i.e., a smaller, targeted group of natural leaders), who can then go on to support their colleagues’ adoption and implementation of a new practice in real time, is a promising avenue for promoting feasible implementation.

Current Study

Effectively addressing suicide prevention in school settings requires a holistic approach with interventions across tiers of support (Arango et al., 2021; Robinson-Link et al., 2020). However, evidence is still needed for effective suicide prevention strategies within each tier of the school mental health continuum. In addition, approaches that are implementable within real-world school settings are critical to prioritize for development and testing. Such approaches also need to offer ongoing implementation support beyond the initial training, as one time “train-and-hope” models are not sufficient to change behaviour in the long-term. To this end, the current study developed a natural leader training to support the real-world implementation of QPR[®], a Tier 2 (selective) gatekeeper intervention. In this paper, we describe the development of this training, as well as the initial mixed-methods pilot evaluation of this implementation strategy.

METHOD

Participants

This study was conducted in one school division in Western Canada. This school division serves both suburban and rural areas of the province. For the pilot evaluation, teachers and school staff from three secondary schools (i.e., offered Grades 7–12) were recruited through an existing partnership with the division. Given division training needs, any school offering Grades 7–12 was eligible to participate in this study. Participating schools were stratified by location and school size, and then randomized to condition: intervention (one school) or attention-control (two schools). The intervention schools received QPR[®] + Natural Leader (NL) training, while the attention-control schools received QPR[®] training only. At all schools, principals were told they could invite all eligible teaching and school staff to participate in QPR[®] training. Eligible staff were defined as those who worked in a full-time capacity in the school building. Staff who chose to participate in QPR[®] training were also invited to participate in the associated research project; however, participation in the research project was not required to receive QPR[®] training. This research was approved by a university research ethics board and the participating school division.

Across participating schools, 66 teachers and school staff completed QPR[®] training. Approximately half of these participants declined to participate in the attached research project or did not complete the consent form. Of those who agreed to participate in some part of the research project, 37 (56.1% of all QPR[®] trainees) agreed to complete a project survey, and 26 (70.3%) ended up providing pre- and post-test survey data. There were no differences between those who did ($n = 26$) and did not ($n = 11$) complete the post-test survey by type of teacher (general or special education), highest level of education, total years of experience working with children and youth, number of students worked with each week, student relationship factors (e.g., students talk to me about their thoughts and feelings), gender, or race/ethnicity.

Procedures

Interventions

The first goal of this project was to develop a natural leader training to support implementation of QPR[®] in the school setting. To make QPR[®] more relevant for the Canadian context, we also developed a flyer with geographically relevant suicide prevention information.

Flyer. All QPR[®] participants were given a two-page flyer on suicide prevention, developed for this study (see Results). The first page contained information on the connection between caring classrooms and suicide prevention, and the second page contained information on suicide prevention, including an overview of the QPR[®] procedure and the names of those to contact within the school for referrals. This flyer was emailed to all participants with their QPR[®] log-in code.

QPR Training. As described above, the gatekeeper training offered in this study was online QPR[®] training (available via <https://qprinstitute.com>). This ~60-minute training covers information on suicide, how to identify someone who is at risk, and how to complete each step of the QPR[®] procedure. The cost of training at the time of this study was \$29.95 USD/per person.

Natural Leader (NL) Training. The NL training consisted of both asynchronous (videos; ~2 hours) and synchronous (three, 60-minute sessions) components (Table 1). Because of the Covid-19 pandemic, all synchronous components were conducted via Zoom. For the asynchronous component, individuals on the natural leader team (see below) were asked to watch whatever videos would be helpful to them (i.e., based on their training and experience, they may not need to watch all videos). Per the anonymous NL training feedback form (see below), each individual video was viewed between one and four times.

During the synchronous component of the training, the natural leader team participated in activities where they (a) identified types of suicide/mental health stigma at their school, and its potential impact on teacher response to students in distress (Session One), (b) role-played the QPR[®] technique (Session Two), and (c) created an implementation plan to support suicide prevention in their school (Session Three), based on barriers identified in Session One. The three sessions were all held after school for this study. We focused an entire session on role-play given past research demonstrating the importance of skills practice to successful implementation of QPR[®] (Coleman & Quest, 2015; Cross et al., 2011). For Session Three, implementation planning was based on the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009).

Natural Leader Team

We originally planned to select the natural leader team at the intervention school via social network analysis (see Supplemental Material). However, the Covid-19 pandemic made conducting this process to select natural leaders impractical (both due to timing and access to teachers), so instead we used recommendations from school principals (i.e., principal selection) to choose the natural leader team for this study. Follow-up analyses demonstrated that principal selection led to a natural leader team who were viewed by their peers as trusted sources of information for supporting students in distress (see Supplemental Material). The principal at the intervention school was told to recommend individuals who they felt teachers/school staff in their building naturally went to for support with students in distress. Individuals who the principal recommended as potential natural leaders were contacted by the first author by email to invite them to join their school's natural leader team. The email stated that although the individual had been recommended by their principal to join the team, their final decision was completely voluntary. Of the six individuals contacted, five agreed to participate and received NL training in spring 2021. Natural leaders received a completion certificate and a \$100 gift card as a thank-you for participating in the training.

Data Collection

All teachers and school staff who participated in QPR[®] training and who consented to research were asked to participate in up to two research activities: (1) online surveys completed via REDCap at pre-test (before QPR[®] training), post-test (one week post QPR[®] training) and two-month follow-up, and/or (2) a focus group in spring 2021 (~4 months after QPR[®] training). As this paper is focused on the initial pilot evaluation of our two conditions, only pre- and post-test data are reported here. Teachers and school staff at the intervention school were also asked to complete an online social network analysis survey, to assess the robustness of our principal selection method (see Supplemental Material). Finally, individuals who participated as a natural leader were asked to (1) provide anonymous feedback at the end of NL training via a Qualtrics survey, and/or (2) participate in a separate focus group (with only natural leaders) in spring 2021 (~2 months after NL training).

Measures

Surveys

Perceived Preparedness. Assessed using six items from the Survey of Knowledge, Attitudes, and Gatekeeper Behaviors for Suicide Prevention in School (Wyman et al., 2008). Participants were asked to indicate how prepared they felt to perform various prevention activities, such as ask appropriate questions about suicide, appropriately respond to disclosures of suicidal thoughts, and persuade a student to seek help. One item from the original scale (preparedness to elicit a commitment not to attempt suicide) was excluded, since getting people to agree to not attempt suicide is not a recommended best practice (Lewis, 2007). Items were rated on a 7-point Likert scale (1 = *not prepared* to 7 = *quite well prepared*). Items were averaged, such that higher total scores represent more preparedness. This scale demonstrated good reliability at pre-test ($\alpha = 0.95$) and post-test ($\alpha = 0.96$).

Role Appropriate Suicide Prevention Knowledge. Assessed using eight items from the Survey of Knowledge, Attitudes, and Gatekeeper Behaviors for Suicide Prevention in School (Wyman et al., 2008).

Participants were asked to indicate how much they knew about various parts of a role-appropriate response for teachers/school staff, such as referral resources for students, what to say and not to say in discussions with a student, and reporting requirements for suicidal ideation or attempts. One item from the original scale (how to provide appropriate documentation) was excluded because this was not a role-appropriate item for the target population in our study. Items were rated on a 7-point Likert scale (1 = *nothing* to 7 = *very much*). Items were averaged, such that higher total scores represent greater role-appropriate knowledge. This scale demonstrated good reliability at pre-test ($\alpha = 0.96$) and post-test ($\alpha = 0.96$).

Demographics. At pre-test, we collected data on survey participants' age, race/ethnicity, gender identity, number of years' experience working with children and youth in an educational setting, current teaching information, and highest level of education completed.

Training Feedback Form

At the end of NL training, participants were asked to complete an anonymous training feedback form. This form asked what videos they had watched; whether the training had increased their perceived preparedness and capacity to serve a suicide prevention support person in their building; and for feedback about the NL training. We also asked for basic demographics. This form was completed by four natural leaders (80% response rate).

Interviews/Focus Groups

Natural leaders ($n = 5$) and teaching/school staff who gave consent to participate in a focus group ($n = 22$) were contacted in April/May 2021 to participate in 60-minute focus groups to provide feedback about the materials they received (i.e., information flyer) and the training they participated in (i.e., QPR[®] and/or Natural Leader training) as part of this project. Natural leaders were also invited to discuss the implementation plan they created at NL training Session Three. Individuals who were not able to meet as part of a group due to scheduling conflicts were instead given the option to participate in an individual interview. Interview and focus group participants were given a \$30 gift card as a thank you for their participation.

Three natural leaders and four teaching/school staff participated in qualitative data collection. A total of two focus groups were conducted with two people in each group; the small number in each group was due to participant availability. One focus group included only natural leaders and the other had non-natural leaders from the intervention school. Another natural leader was interviewed on their own due to scheduling conflicts, and an additional two school staff from the attention-control schools were also interviewed.

Analysis

Quantitative

Given the small sample size in this pilot evaluation, we used descriptive and bivariate statistics. Since this study reports on the preliminary stages of our research/data collection, and only eight participants from the intervention condition provided pre- and post-test data on our measures of interest, we did not examine between-group differences for this study. For bivariate analyses, we conducted paired samples t-tests to examine differences in (a) preparedness and (b) knowledge from pre-test to post-test. These t-tests were run separately for each condition. Cohen's d was used to provide an estimate of effect size.

Information from the NL training feedback form was summarized using descriptive statistics, and by reviewing open-ended feedback on suggested improvements to NL training.

Qualitative

All interviews and focus groups were audio-recorded and transcribed verbatim. The third and fourth authors reviewed these transcripts independently and met to discuss emerging ideas and create a draft codebook. The draft codebook was then reviewed by the first and second authors. The first four authors then met for a team discussion, which informed further refinement of the codebook. This refined codebook was used by the third and fourth author to code all transcripts, using a blend of descriptive coding, subcoding, and simultaneous coding (Saldaña, 2013). The third and fourth author reviewed each other's coding and then met to come to agreement on any inconsistencies. All coded transcripts were also reviewed by the first and second authors. These four individuals then met to discuss codes and create themes.

Positionality

The first five authors in this study are cisgender women trained within the Western scientific tradition. The sixth author is a cisgender man who is trained as a school psychologist. In addition to the lens (and biases) that our own lived and training experiences bring to this project, we also bring knowledge from different fields (developmental psychology, school psychology, biostatistics) and training stages (faculty member, postdoctoral fellow, doctoral trainees, practicing psychologist). Although most of the team has worked with schools in a research and/or practice capacity, none of our research team members has been a full-time teacher in a kindergarten-to-Grade 12 (K–12) setting. Thus, our interpretation of quantitative and qualitative findings from this study comes from an outsider perspective.

RESULTS

Intervention Development

The flyer and NL training were co-created via an iterative, multi-step process by an interdisciplinary team consisting of school mental health professionals; researchers in psychology, education, and social work; a former teacher; and an Indigenous knowledge keeper. A detailed description of intervention development is provided in Table 1.

Pilot Evaluation: Feasibility, Acceptability and Utility

Demographics

Information about participant demographics for the survey sample is available in Table 2. Most participants identified as White, cisgender women, and about half had more than 15 years of experience working with children and youth in an educational setting.

From the demographic information collected on the NL training feedback form, we found that, like the overall sample, most natural leaders had more than 15 years of experience working with children and youth, and all had either completed a bachelor's or master's degree. Only one natural leader had previously

Table 1
Intervention Development Timeline

Intervention Development Component	Key Dates	Description
Literature review	12/2019– 01/2020	First author led a team of graduate research assistants to conduct a literature review on best practices in school-based suicide prevention. Although a literature review is a key piece of intervention development, suicide prevention research is heavily focused on individual level risk and protective factors (Gould et al., 2009), and has historically omitted structural root causes that are linked to suicide (e.g., racism, homophobia, transphobia, colonialism, ableism, gender role expectations, and their intersections; Austin et al., 2020; Chandler & Lalonde, 1998; Evans et al., 2011; Opara et al., 2020). Because understanding these structural factors is key to effective prevention, we grounded all training development in an intersectional approach to suicide prevention.
Intervention development team meeting #1	01/2020	Full development team discussed findings from the literature review, reviewed QPR training content, and identified what the flyer and NL training should include. Additional feedback on intervention development was provided based on development team members' experiences, expertise, and wisdom. There was broad agreement that the flyer and training needed to focus on building relationships (as this is core to culturally responsive teaching) and the role of intersectionality (including experiences with colonization) in holistically understanding risk for suicide, respectively.
Youth feedback	03/2020– 04/2020	Through our team's partnership with the participating school division, youth were asked to provide feedback on intervention with students in distress, to centre youth voice in the development of all materials. Gathered youth feedback via an anonymous survey that was completed by 42 youth in Grades 9–12 (online and paper survey options provided). Example survey questions include "What do you want teachers to know about mental health?" and "How could a teacher best support a student who they thought was at risk of harming themselves?" Also gathered feedback on these questions from an existing youth advisory of adolescent boys that the first author is engaged with.
Draft intervention creation & intervention development team meeting #2	04/2020	Core research team created draft training materials based on discussion at first development team meeting and youth feedback. Full development team reviewed the draft training materials, and provided feedback/suggestions for revision. Full development team discussed required changes to project due to Covid-19 pandemic (e.g., offering NL training entirely remotely).

... continued

Table 1, continued
Intervention Development Timeline

Intervention Development Component	Key Dates	Description
Final revisions to intervention materials	04/2020–05/2020	Core research team revised flyer and NL training based on feedback from second full development team meeting. Revised materials sent to all development team members for final review and comment. Revised materials sent to Centre for Suicide Prevention for expert review.
Final versions of intervention materials created	Summer 2020	First author created final versions of intervention materials (i.e., flyer and NL training) based on last round of development team and Centre for Suicide Prevention feedback.
Natural leader training: Asynchronous components recorded	Fall 2020	Asynchronous NL training videos were recorded by members of the intervention development team. Part 1, Video 1: Perceived Barriers & Stigma – An Overview (10 min) Part 2, Video 1: Youth Suicide – Prevalence & Warning Signs (45 min) Part 2, Video 2: Youth Suicide – Prevention & Intersectionality (15 min) Part 2, Video 3: Suicide Ideation Response Protocol Overview (15 min) Part 3, Video 1: An Intersectional Approach – Risk Factors (20 min) Part 3, Video 2: An Intersectional Approach – Protective Factors (20 min)
Natural leader training: Synchronous components delivered	03/2021	Synchronous portions of the NL training were delivered for the first time to one intervention school via Zoom. Session 1: Getting to Know Our Context – Understanding Barriers & Stigma in Our School (60 minutes). Session 2: QPR Roleplay (60 minutes). Session 3: Returning to Our Context – Implementation Planning (60 minutes). Sessions were facilitated by multiple intervention development team members.

Table 2
Sample Demographics for Participants with Pre- and Post-Test Survey Data

Variable <i>N</i>		Overall Sample (<i>N</i> = 26)		QPR Only (<i>n</i> = 18)		QPR + NL (<i>n</i> = 8)	
		%	<i>N</i>	%	<i>N</i>	%	<i>N</i>
Age	20–40 years	8	30.8	6	33.3	2	25.0
	40–50 years	13	50.0	10	55.6	3	37.5
	50–60 years	5	19.2	2	11.1	3	37.5
Race/ ethnicity	Ethnocultural	2	7.7	1	5.6	1	12.5
	White	24	92.3	17	94.4	7	87.5
Gender identity	Man	6	23.1	5	27.8	1	12.5
	Woman	20	76.9	13	72.2	7	87.5
Years of experience working with children and youth	1–5 years	4	15.4	3	16.7	1	12.5
	6–10 years	5	19.2	4	22.2	1	12.5
	10–15 years	6	23.1	3	16.7	3	37.5
	More than 15 years	11	42.3	8	44.4	3	37.5
Currently teaching	K/ECS	0	0.0	0	0.0	0	0.0
	Grades 1, 2, and/or 3	2	7.7	2	11.1	0	0.0
	Grades 4, 5, and/or 6	6	23.1	3	16.7	3	37.5
	Grades 7, 8, and/or 9	10	38.5	5	28.8	5	62.5
	Grades 10, 11, and/or 12	4	15.4	4	22.2	0	0.0
	Other school staff	11	42.3	8	44.4	3	37.5
Highest level of education	Bachelor's degree*	15	57.7	13	72.2	2	25.0
	Master's degree	5	19.2	3	16.7	2	25.0
	Other*	5	19.2	1	5.6	4	50.0

Note: This table is for sample with both pre- and post-test data (*N* = 26). Detailed information on race/ethnicity and gender identity is not provided, as cell size per category was less than 5. Percentages for some variables can add up to more than 100% because participants could select more than one answer.

*Denotes significant differences between conditions. Specifically, those in the QPR only condition were more likely to have a Bachelor's degree as their highest level of education, and those in the QPR + NL condition were more likely to report "Other" as their highest level of education.

received any suicide prevention training. Natural leaders had a variety of roles within the school building (administration, mental/behavioural health support, learning support, teacher).

Quantitative Findings

Data from pre- and post-test surveys suggest the utility of our approach. From pre- to post-test, participants in both conditions reported significant increases in both their preparedness to serve as a suicide prevention gatekeeper, and in their knowledge about role-appropriate responses (Table 3). For preparedness, the QPR[®] + NL training condition had a stronger effect size (Cohen's $d = 1.17$) as compared to the QPR[®] only condition (Cohen's $d = 0.96$), though both effect sizes were large. For knowledge, effect sizes across conditions were very similar (Table 3).

Qualitative Themes

Through interviews and focus groups with school staff who participated in the two conditions, we identified several themes regarding the feasibility, acceptability and utility of our interventions and implementation approach. In this section, we also incorporate findings from the NL training feedback form.

Flyer. Feedback on the flyer was generally positive, though overall, we received limited feedback on this intervention. One interview participant (an administrator) at an attention-control school shared that the content of the flyer was helpful because it “explain[ed] the role that people can play in suicide prevention and then some very kind of straightforward things you can say.” However, a behavioural support staff participant at a different attention-control school found the flyer content difficult to remember. At the intervention school, the individuals who participated in the non-natural leader focus group (a teacher and a learning assistant) suggested there could be a version of the flyer for youth as well, but that the current version of the flyer “gives you the...language that you can use and stuff like that...sometimes when it's emotionally charged and you're dealing with a student it's kind of nice for you to like separate your personal feeling from it, or your emotional connection and just have that language there for you.” Given these results, it appears that although the flyer can be a helpful tool, we need to do a better job communicating its purpose and availability to participants.

QPR. A prominent theme across interviews/focus groups was a preference for QPR[®] training over the flyer, and over other types of training participants had taken in the past. QPR[®] was described as “clear and concise” (behavioural support staff), “to the point” (administrator), and “very valuable” (natural leader). Integrating with quantitative findings, a behavioural support staff participant noted that QPR[®] training helped teachers understand their role-appropriate response: “I think the [QPR[®]] training helped the teacher to kind of have the conversation and then refer. Rather than ‘we have a lot of helpers in our work and they try to fix it and try to take care of it...’” During a focus group at the intervention school, a non-natural leader participant further shared that “I can say speaking to all of the, all of my coworkers, everybody like, you know, you don't enjoy that kind of thing [QPR[®] training] because it's hard. But you're like happy you did it. You're like ‘Wow’. You know I know after, after it was done talking to a couple of the [staff] it was like we all felt really good that we had that [training].”

Compared to other suicide prevention training programs, participants felt that QPR[®] was appropriate for teachers because it “addresses the issue but [is] not traumatizing, overwhelming [e.g., graphic images]

Table 3
Descriptive Statistics and Paired Sample t-test Results

	Pre-Test		Post-Test		<i>t</i>	<i>df</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Preparedness – QPR only	4.02	1.51	5.37	0.95	-5.34***	17	0.96
Preparedness – QPR + NL	4.02	1.53	5.69	1.29	-2.96*	7	1.17
	Pre-Test		Post-Test				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	Cohen's <i>d</i>
Knowledge – QPR only	3.41	1.48	5.10	1.09	-6.80***	17	1.23
Knowledge – QPR + NL	3.81	1.47	5.53	1.30	-3.11*	7	1.24

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Analyses only include participants who had both pre- and post-test data ($N = 26$).

... it was helpful but a stable way for the teachers to get the information without them feeling even more uncomfortable. Like it actually made them feel comfortable” (behavioural support staff participant). Overall, QPR® “hit some very key points in an effective way without making it laborious [and losing] the message” (administrator participant). As a result, participants felt that QPR® training increased school staff’s comfort when asking students about feelings of suicide, and confidence that they were responding appropriately. For example, a non-natural leader teacher from the intervention school shared that the most helpful thing they learned from QPR® training was “language, what to say and when to say it. I think that’s what mostly people need it is just having confidence that if you say it like this you’re gonna have, you’re gonna make a difference in a positive way.”

Natural Leader (NL) Training. Consistently, participants on the natural leader team shared that the most valuable part of NL training was building a team, so they had support, and did not feel that one person had to take on everything. As a learning support staff member who served as a natural leader shared, “the team we have and how supportive we are, if somebody is dealing with a situation. Everybody is checking in on them and making sure afterwards that they’re okay, during conversations with students that they’re okay, or if they need any support or help in the process or contacting anybody,” and the administrator agreed that the NL training served to “coalesce [us] as a team.” The team approach was also helpful for ensuring members were familiar with school division policies and procedures and allowed members from different backgrounds to share their experiences.

The NL training also appeared to increase participants’ comfort to intervene because they were able to role play, receive feedback from professionals, and recognize that they did not have to be an expert in suicide prevention to support a student. For example, a teacher natural leader shared that, during the role play, they “liked seeing the words, I liked seeing the scenario, I thought that was super helpful especially, because that was the part I struggled with the most like ‘What do I say?’” A natural leader who worked in a learning support capacity further shared: “My confidence grew in asking questions and talking about suicide with kids after that like tremendously.” These findings align with data from the training feedback form, where all respondents indicated that, post-NL training, they felt mostly prepared to serve as a suicide prevention support person in their building. In addition, all said that the training promoted their capacity to serve in this role, and that the strategies they learned at NL training provided a new way of thinking about how they support colleagues.

All three synchronous sessions (as well as the asynchronous videos) were also viewed positively in both the interview/focus groups and training feedback form. For example, on the training feedback form, one natural leader shared that in Session One “the discussion time was valuable.” However, although the training overall was viewed positively, all three natural leaders we spoke with provided suggestions for updates to the NL training. Two natural leaders discussed that it is important to increase the time for the implementation planning session (Session Three) to have enough time to discuss strategies and debrief. In addition, two leaders discussed adding a bit more time to the role play session, since “...it naturally led to questions and conversation that was very, very good.” A suggestion was also made to end the training sessions on a “lighter note,” since suicide is “such a heavy topic.” Finally, on the training feedback survey, one leader noted that an improvement to Session One would be to also focus on strengths within the school building, and not only stigma and barriers.

DISCUSSION

In this study, we explored the development and initial mixed-methods pilot evaluation of a natural leader training program designed to support the real-world implementation of QPR[®] gatekeeper training. We developed the natural leader training to better understand a promising implementation-sensitive approach for school mental health interventions. The findings from our study demonstrate that natural leader approaches are worthy of further study and provide some directions for this research.

Strengths of our intervention development process include the co-creation of the NL training by a multi-disciplinary team who brought a variety of research, practice, and lived experiences; the inclusion of youth voice; and a focus on embedding intersectional understandings of suicide. Although we prepared a flyer as an intervention for this study, our results demonstrate that a stand-alone flyer would not have been sufficient to prepare teachers and school staff to participate as suicide prevention gatekeepers. Rather, our findings suggest that low-cost, brief training – in addition to the flyer – may be helpful for many teachers and school staff, at least in terms of increasing comfort and capacity. In our study, we found that teachers and other school staff who participated in QPR[®] training reported significant and large changes on two commonly used gatekeeper evaluation scales, which assessed preparedness and knowledge of role-appropriate response. These changes were supported by qualitative data on QPR[®] training, where participants reported that the training increased their comfort and confidence for participating as a gatekeeper. Recent research by Robinson-Link et al. (2020) with more than 700 teachers in the northeastern United States who completed one-hour long *Kognito* gatekeeper training also found a significant increase to preparedness post-training. However, teachers in their study did not report a change in actual gatekeeper behaviour (e.g., proportion of students approached). They conclude that gatekeeper training “may be a necessary, but not sufficient, component of suicide prevention” in schools (p. 247). For our project, we are working to obtain standard suicide referral data from the participating schools. These data will be for one year prior to and after training at each school, and thus we will be able to assess potential changes in actual referral behaviour within and across conditions.

The NL training was also very well-received, and our findings about roleplay increasing comfort and confidence to intervene align with past research (Cross et al., 2011). However, additional research is needed to understand whether training natural leaders with roleplay allows them to support others in their school setting with this activity, particularly those teachers for whom QPR[®] training on its own is not enough to build intervention skills. Longer-term follow-up is also needed to determine if post-QPR[®] improvements in school staff comfort and confidence for intervention are better sustained in natural leader schools. Although the natural leader team in our study was making progress on their implementation plan (data not shown), an important theme was the need for additional time to create this plan as part of training, and the potential for “as-needed” follow-up support as leaders work to implement their plan. We feel the request for additional time still aligns with our implementation-sensitive goal, as we would only be requesting increased professional development time for a small portion of the total school staff. We are currently offering NL training in another division, which will allow us to implement some of the recommended changes.

Limitations

First, our research project was interrupted by the Covid-19 pandemic, which means we are still in the process of collecting data. At the time of writing this article, the available sample size with outcome data was still very small. As such, we (a) did not examine between-group differences and (b) need to temper implications (especially regarding quantitative results) until additional data are collected. We are currently conducting this study in a second school division with a larger number of schools. This will allow us to assess our approach more rigorously, including by hopefully incorporating behavioural referral data. As noted above, understanding actual behaviour change, as opposed to a sole focus on attitudes and beliefs, is critical to advancing the gatekeeper intervention literature. Second, our sample was predominately White women. In addition, because of the small sample size in this project, we were not able to explore effects separately for teaching and non-teaching school staff.

Implications for Evidence-Based, Implementation Sensitive Approaches to School Mental Health

In this study, brief, low-cost training was associated with large changes in school staffs' self-perceived preparedness to intervene with students in distress, as demonstrated by both quantitative and qualitative data. Additional data are needed on the sustainment of these effects, but as time to attend training is a key barrier for teachers (Nadeem et al., 2011), these findings are promising. One possibility to further address this time barrier is to systematically offer school mental health-related training sessions, such as QPR[®], as part of pre-service education (i.e., before teachers are in the field; Baker et al., 2022). Our findings also align with past research on online-only gatekeeper training (Ghoncheh et al., 2016), concluding that "gatekeepers with limited time and resources can benefit from the accessibility, simplicity, and flexibility of Web-based training" (p. 1), which we also found in our Canadian sample. However, it is likely a brief training program is not enough for all teachers (Han & Weiss, 2005). Thus, the use of natural leaders as a strategic approach to capitalize on brief training for all school staff is promising and should be considered more often in school mental health research and practice. Although research on the use of natural leaders as school mental health implementation support is almost two decades old, we are aware of limited school mental health research that is taking this approach, especially as it relates to youth suicide prevention. Additional work is needed to explore the effectiveness of this promising approach across diverse settings.

SUPPLEMENTAL MATERIAL

SOCIAL NETWORK ANALYSIS OVERVIEW

Background

Prior evidence suggests that natural leaders selected via social network analysis may be somewhat different than those indicated via principal selection (Burke et al., 2015). Thus, to assess the robustness of our natural leader selection method for this study (principal selection), we still conducted social network analysis at the participating intervention school. Although we typically conduct social network surveys in-person via face-to-face interviews (Exner-Cortens et al., 2022), this was not possible given pandemic restrictions. Instead, staff from the intervention school completed a social network survey via REDCap, an online data collection software. This survey asked participants to name (free recall) (1) who they went to for advice or information when dealing with a student who is at risk of suicide; (2) who they went to for advice or information about supporting student mental health and/or well-being; and (3) who they socialized with at school. The first two questions were designed to capture expressive ties (i.e., interactions focused on work-related content), and the third question was designed to capture instrumental ties (i.e., interactions focused on friendship/personal support). Full natural leader selection criteria based on these ties are described in full elsewhere (Exner-Cortens et al., 2022).

Analysis

Social network data were analyzed in UCINET. Bonachich's approach was used to calculate in-degree (i.e., how many people go to that individual) and out-degree (i.e., how many people that individual goes to) centrality scores (Hanneman & Riddle, 2005). This calculation considers both centrality (i.e., how many ties an individual has within the network) and power (i.e., how well-connected their ties are). This calculation thus allowed us to assess the coverage that selected natural leaders had in their network and was appropriate given the size and structure of the network. We also calculated eigenvector centrality (McCulloh et al., 2013), which is another marker of influence within the network. The maximum value for eigenvector centrality is one.

Findings: Network Coverage

Based on Bonachich's and eigenvector centrality for the supporting students' at-risk network (SNA Question 1), we found that almost all selected natural leaders (four of five) had higher in-degree and eigenvector centrality values than all others in the network, which suggests their prominence as trusted sources of information on how to support students at risk of suicide. In addition, the average eigenvector centrality in this network for the natural leader team was 0.37 (range, 0.31–0.48), as compared to 0.07 (range, 0.00–0.40) for non-natural leaders. On average, natural leaders had reach to three teachers in this network. Similar results were found for the mental health support network (SNA Question 2). Thus, it appears that principal selection gave us access to key leaders in the building, and that for this project, this approach was both highly useful and feasible.

Implications

Although we had to use principal selection in this study to identify natural leaders (due to Covid-19 related restrictions), we were still able to identify a team with high network coverage, who were in a variety of roles within the school building (administration, mental health support, learning support, teacher), and who were viewed by their peers as trusted sources of information for supporting students in distress. Based on the social network analysis, there was only one individual in the network who was not on our natural leader team, but who had high centrality and thus would have been invited to the team if we had used a network-selection method. This finding is not unexpected given past research in this area (Burke et al., 2015). As there are currently no user-friendly methods for schools themselves to conduct social network analysis for natural leader selection, though, we feel our results support that principal selection is an implementation-sensitive approach in the interim.

REFERENCES

- Arango, A., Gipson, P. Y., Votta, J. G., & King, C. A. (2021). Saving lives: Recognizing and intervening with youth at risk for suicide. *Annual Review of Clinical Psychology, 17*, 259–284. <https://doi.org/10.1146/annurev-clinpsy-081219-103740>
- Atkins, M. S., Frazier, S. L., Leathers, S. J., Graczyk, P. A., Talbott, E., Jakobsons, L., Abdul-Adil, J., Marinez-Lora, A., Demirtas, H., Gibbons, R. B., & Bell, C. C. (2008). Teacher key opinion leaders and mental health consultation in low-income urban schools. *Journal of Consulting and Clinical Psychology, 76*(5), 905–908. <https://doi.org/10.1037/a0013036>
- Austin, A., Craig, S. L., D'Souza, S., & McInroy, L. B. (2020). Suicidality among transgender youth: Elucidating the role of interpersonal risk factors. *Journal of Interpersonal Violence*. Advance online publication. <https://doi.org/10.1177/0886260520915554>
- Baker, E., Matejko, E., Exner-Cortens, D., Wright, A., Lee, L., & Lund, D. (2022). *Training education and social work students to prevent adolescent dating violence through a social justice lens*. Manuscript in preparation.
- Brion-Meisels, G. (2014). “Can I trust you with this?” Investigating middle school students’ use of learning supports. *Urban Education, 50*(6), 718–749. <https://doi.org/10.1177/004208591452788>
- Burke, J. G., Lich, K. H., Neal, J. W., Meissner, H. I., Yonas, M., & Mabry, P. L. (2015). Enhancing dissemination and implementation research using systems science methods. *International Journal of Behavioral Medicine, 22*(3), 283–291.
- Chandler, M. J., & Lalonde, C. (1998). Cultural continuity as a hedge against suicide in Canada’s First Nations. *Transcultural Psychiatry, 35*(2), 191–219. <https://doi.org/10.1177/136346159803500202>
- Children First Canada. (2021). *Raising Canada 2021 – Top 10 threats to childhood in Canada: Recovering from the impacts of COVID-19*. https://childrenfirstcanada.org/wp-content/uploads/2021/08/CFC-RC-Report-2021_Final.pdf
- Coleman, D., & Quest, A. D. (2015) Science from evaluation: Testing hypotheses about differential effects of three youth-focused suicide prevention trainings. *Social Work in Public Health, 30*(2), 117–128. <https://doi.org/10.1080/19371918.2014.938397>
- Cross, W. F., Seaburn, D., Gibbs, D., Schmeelk-Cone, K., White, A. M., & Caine, E. D. (2011). Does practice make perfect? A randomized control trial of behavioral rehearsal on suicide prevention gatekeeper skills. *The Journal of Primary Prevention, 32*(3–4), 195–211. <https://doi.org/10.1007/s10935-011-0250-z>
- Exner-Cortens, D., Conde, C. F., Haines-Saah, R., Lee, M., Pawluk, C., & Owens, J. S. (2022). *Peer coaching to support implementation of the Daily Report Card. Online program in a Canadian context: A case study*. Manuscript in preparation.

- Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, 4(1), 1–15. <https://doi.org/10.1186/1748-5908-4-50>
- Evans, J., Frank, B., Olliffe, J. L., & Gregory, D. (2011). Health, illness, men and masculinities (HIMM): A theoretical framework for understanding men and their health. *American Journal of Men's Health*, 8(1), 7–15. <https://doi.org/10.1016/j.jomh.2010.09.227>
- Freedenthal, S., & Breslin, L. (2010). High school teachers' experiences with suicidal students: A descriptive study. *Journal of Loss and Trauma*, 15(2), 83–92. <https://doi.org/10.1080/15325020902928625>
- Ghoncheh, R., Gould, M. S., Twisk, J. W. R., Kerkhof A., & Koot, H. M. (2016). Efficacy of adolescent suicide prevention e-learning modules for gatekeepers: A randomized controlled trial. *JMIR Mental Health*, 3(1), e8. <https://doi.org/10.2196/mental.4614>
- Gould, M. S., Marrocco, F. A., Hoagwood, K., Kleinman, M., Amakawa, L., & Altschuler, E. (2009). Service use by at-risk youth after school-based suicide screening. *Journal of the American Academy of Child & Adolescent Psychiatry*, 48(12), 1193–1201. <https://doi.org/10.1097/CHI.0b013e3181bef6d5>
- Han, S. S., & Weiss, B. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology*, 33(6), 665–679. <https://doi.org/10.1007/s10802-005-7646-2>
- Hanneman, R. A. & Riddle, M. (2005). *Introduction to Social Network Methods*. University of California, Riverside. <http://faculty.ucr.edu/~hanneman/nettext/>
- Hatton, V., Heath, M. A., Gibb, G. S., Coyne, S., Hudnall, G., & Bledsoe, C. (2017). Secondary teachers' perceptions of their role in suicide prevention and intervention. *School Mental Health: A Multidisciplinary Research and Practice Journal*, 9(1), 97–116. <https://doi.org/10.1007/s12310-015-9173-9>
- Katoaka, S., Stein, B. D., Nadeem, E., & Wong, M. (2007). Who gets care? Mental health service use following a school-based suicide prevention program. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(10), 1341–1348. <https://doi.org/10.1097/chi.0b013e31813761fd>
- Lewis, L. M. (2007). No-harm contracts: A review of what we know. *Suicide and Life-Threatening Behavior*, 37(1), 50–57. <https://doi.org/10.1521/suli.2007.37.1.50>
- McCulloh, I., Armstrong, H., & Johnson, A. (2013). Centrality measures. In *Social Network Analysis with Applications* (pp. 29–67). John Wiley & Sons, Inc.
- Middlebrook, D. L., LeMaster, P. L., Beals, J., Novins, D. K., & Manson, S. M. (2001). Suicide prevention in American Indian and Alaska Native communities: A critical review of programs. *Suicide and Life-Threatening Behavior*, 31, 132–149.
- Mo, P. K. H., Ko, T. T., & Xin, M. Q. (2018). School-based gatekeeper training programmes in enhancing gatekeepers' cognitions and behaviours for adolescent suicide prevention: A systematic review. *Child and Adolescent Psychiatry and Mental Health*, 12, 29. <https://doi.org/10.1186/s13034-018-0233-4>
- Nadeem, E., Katoaka, S. H., Chang, V. Y., Vona, P., Wong, M., & Stein, B. D. (2011). The role of teachers in school-based suicide prevention: A qualitative study of school staff perspectives. *School Mental Health*, 3, 209–221. <https://doi.org/10.1007/s12310-011-9056-7>
- Opara, I., Assan, M. A., Pierre, K., Gunn, J. F., Metzger, I., Hamilton, J., & Arugu, E. (2020). Suicide among Black children: An integrated model of the interpersonal-psychological theory of suicide and intersectionality theory for researchers and clinicians. *Journal of Black Studies*, 51(6), 611–631. <https://doi.org/10.1177/0021934720935641>
- Pistone, I., Beckman, U., Eriksson, E., Lagerlöf, H., & Sager, M. (2019). The effects of educational interventions on suicide: A systematic review and meta-analysis. *International Journal of Social Psychiatry*, 65(5), 399–412. <https://doi.org/10.1177/0020764019852655>
- Reis, C., & Cornell, D. (2008). An evaluation of suicide gatekeeper training for school counselors and teachers. *Professional School Counseling*, 11(6), 386–394. <https://doi.org/10.1177/2156759X0801100605>
- 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), 164–182. <https://doi.org/10.1027/0227-5910/a000168>

- Robinson, J., Bailey, E., Witt, K., Stefanac, N., Milner, A., Currier, D., ... Hetrick, S. (2018). What works in youth suicide prevention? A systematic review and meta-analysis. *EClinicalMedicine*, 4-5, 52–91. <https://doi.org/10.1016/j.eclinm.2018.10.004>
- Robinson-Link, N., Hoover, S., Bernstein, L., Lever, N., Maton, K., & Wilcox, H. (2020). Is gatekeeper training enough for suicide prevention? *School Mental Health*, 12, 239–249. <https://doi.org/10.1007/s12310-019-09345-x>
- Saldaña, J. (2013). *The coding manual for qualitative researchers*. SAGE Publications Inc.
- Scherff, A. R., Eckert, T. L., & Miller, D. N. (2005). Youth suicide prevention: A survey of public school superintendents' acceptability of school-based programs. *Suicide and Life-Threatening Behavior*, 35(2), 154–169. <https://doi.org/10.1521/suli.35.2.154.62874>
- Shtivelband, A., Aloise-Young, P. A., & Chen, P. Y. (2015). Sustaining the effects of gatekeeper suicide prevention training: A qualitative study. *Crisis*, 36(2), 102–109. <https://doi.org/10.1027/0227-5910/a000304>
- Tompkins, T. L., Witt, J., & Abraibesh, N. (2009). 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>
- Westefeld, J. S., Kettmann, J. D. J., Lovmo, C., & Hey, C. (2007). High school suicide: Knowledge and opinions of teachers. *Journal of Loss & Trauma*, 12(1), 31–42. <https://doi.org/10.1080/15325020600757839>
- 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 youth 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>
- Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., ... Purebl, G. (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](https://doi.org/10.1016/S2215-0366(16)30030-X)