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ORIGINAL PAPER

Teachers as Youth Suicide Prevention Gatekeepers: An Examination of Suicide Prevention Training and Exposure to Students at Risk of Suicide

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Abstract

Background Teachers are important gatekeepers in suicide prevention for children and youth, yet little is known about factors that contribute to suicide prevention training effectiveness and the influence of student suicidality on teachers' role as gatekeepers.

Objective This study examined teachers' attitudes and self-efficacy in suicide prevention including an examination of suicide prevention training and exposure to student suicidality. Researchers examined incremental prediction of the relationship between teachers' self-efficacy, outcome expectations, and outcome values following prevention training.

Methods Participants included teachers in PreK-12th grade schools in the United States ($N = 505$). Researchers used non-parametric statistics to examine group level differences and a structural equation model (SEM) to test the proposed theoretical model.

Results Teachers who experienced a student death by suicide reported significantly higher levels of gatekeeper reluctance than teachers who had not experienced a student death by suicide ($p < 0.01$). Similarly, teachers who encountered students with suicidal thoughts reported greater levels of gatekeeper reluctance ($p < 0.01$) and higher self-efficacy to engage in suicide prevention ($p < 0.05$) compared to teachers who had not had this exposure. Results of the SEM indicated an adequate goodness of fit and fit statistics [$\chi^2(87) = 194.420$, $p = 0.000$; CFI = 0.95; RMSEA = 0.05]. The model remained in-tact when exposure to student suicide was added.

Conclusions Findings support the importance of supporting teachers continued engagement in youth suicide prevention and prevention training that targets specific outcomes in teachers' attitudes and efficacy.

Keywords Youth suicide · Suicide prevention · Student death by suicide · School mental health · Structural equation model

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Introduction

Suicide among school-aged children and youth is an increasing public health concern. The proliferated rate of suicide among young people is alarming and highlights unmet mental health needs of students that need to be addressed (Lambie et al., 2019). Specifically, suicide is currently the second leading cause of death in the United States among children and youth ages 10 to 19 (Centers for Disease Control and Prevention [CDC], 2017a; Shain et al., 2016). Moreover, many young people report thinking about and seriously considering suicide, particularly in the wake of the COVID-19 pandemic. In the national *Adolescent Behaviors and Experiences Survey,* 19.9% of students ($N = 7705$) in grades 9 through 12 reported seriously considering attempting suicide and 9% reported attempting suicide within the previous 12 months (Rico et al., 2022). Translating these findings to the classroom, approximately five students in a high school classroom of twenty-five students will seriously consider suicide. Yet suicide risk is not limited to older youth and suicide is becoming increasingly prevalent among young children. The CDC (2017b) reported that 1503 children ages five to twelve died by suicide between 2000 and 2017, with increasing suicide rates among elementary school-aged black children (Sheftall et al., 2016). Considering the alarming rates of suicide risk among children and young people in the United States, effective strategies to prevent youth suicide are imperative. Since teachers play a key role in youth suicide prevention efforts (Hatton et al., 2017), the purpose of the present study was to increase understanding of factors that may influence teachers' attitudes and self-efficacy in suicide prevention including an examination of suicide prevention training and exposure to student suicidality.

Teachers as Gatekeepers in Youth Suicide Prevention

Schools are increasingly recognized as critical contexts to address suicide risk and engage in youth suicide prevention since children and youth spend much of their time in school (Kolves et al., 2017; Mo et al., 2018; Ross et al., 2017). School-based suicide prevention and intervention programs are critical approaches to address youth suicide and support student help-seeking behaviors (Mo et al., 2018). The early identification of students at risk for suicide is an essential aspect of delivering effective suicide interventions, and adults who spend a large portion of time with children and youth are well suited to identify suicide risk and intervene (Torok et al., 2019). It is therefore unsurprising that teachers play an important role in mitigating student suicide and are often on the front lines in suicide prevention efforts. Teachers are widely recognized as 'gatekeepers' because they are in a unique position to identify suicide warning signs, provide support, and refer students to mental health services (Nadeem et al., 2011; Sisask et al., 2014; Torok et al., 2019; U.S. Department of Health and Human Services Office of the Surgeon General & National Action Alliance for Suicide Prevention, 2012).

As gatekeepers, teachers are often the first adults to notice students' emotional or psychosocial concerns and are therefore in an inimitable position to intervene (Freedenthal & Breslin, 2010; Torok et al., 2019). However, many teachers feel unprepared or uncomfortable addressing suicide with students (Mo et al., 2018). For example, in a sample of 152 teachers, only 23.6% of teachers felt they could ask a student at risk of suicide if he/she/they is suicidal, and relatively few teachers (9.2%) strongly agreed that they could

recognize a student at risk of suicide (Appleby, 2016). Teachers have reported several barriers in intervening with students at risk of suicide, such as limited education or training and concern that they will make the crisis situation worse (Hatton et al., 2017; Ross et al., 2017). As a result, there is a need to train teachers in suicide prevention and how to effectively respond to students in crisis (Freedenthal & Breslin, 2010; McConnellogue & Storey, 2017; Ross et al., 2017). If teachers are expected to play a significant role in school-based suicide prevention, it is imperative that they are trained in the identification of students at risk for suicide, how to provide immediate support, and how to refer at-risk students to appropriate mental health professionals.

Research on Suicide Prevention Training

As the recognition of the importance of suicide prevention training for teachers has increased, so has the focus on the evaluation of evidenced-based training practices. Scholars have highlighted the critical need for strategies to increase the impact and effectiveness of suicide prevention training for teachers (Hatton et al., 2017). Systematic reviews of the effectiveness of suicide prevention training have found mixed results across decades of research. In a review of research investigating suicide gatekeeper training for staff in schools (including teachers), Mo et al. (2018) found that gatekeeper training programs were generally effective in improving suicide prevention knowledge, self-efficacy, and skills among participants across 14 studies. However, they reported mixed evidence that training created meaningful change in participants' attitudes toward youth suicide and actual gatekeeper behaviors. As a result, Mo et al. (2018) identified a need for additional empirical research examining the effectiveness of school-based training on improving participants' attitudes toward suicide prevention and suicide related behaviors. Torok et al. (2019) found similar results in a systematic review of 13 studies examining gatekeeper training among teachers and parents. They found that training generally increased teachers' knowledge and self-efficacy; however, there was insufficient evidence that training impacted significant behavioral change among teachers, such as identifying at-risk students or making referrals for students at-risk of suicide. While both studies noted the difficulties in measuring outcomes across studies and limitations in methodological rigor, results suggested a critical need to better understand the outcomes of suicide prevention training and how improvements in teachers' knowledge and skills can translate into gatekeeping behaviors (Mo et al., 2018). Overall, scholars have identified a gap in the literature regarding the ways school-based gatekeeper training may impact behaviors over time (Williford et al., 2021).

The limited evidence of behavioral change and mixed evidence regarding attitudinal change following suicide prevention training suggests that teachers may be reluctant to engage in suicide prevention despite increases in their skills or knowledge. Teacher reluctance is likely a multi-faceted issue including a variety of personal and contextual factors. Teachers may view suicide prevention as a burden, may feel it is not within their role as a teacher to act as a mental health gatekeeper, or may need additional training in youth suicide prevention (Nadeem et al., 2011; Reis & Cornell, 2008; Ross et al., 2017). Thus, it is important to enhance understanding of the value teachers place on their role in suicide prevention and how training can influence their positive attitudes or values toward gatekeeping behaviors as a potential precedent for behavioral change. Although studies on suicide prevention training often examine outcomes such as attitudes, self-efficacy, and knowledge (McConnellogue & Storey, 2017), what is less clear is how these constructs may relate to

and interact with each other. Therefore, there is a need to enhance the current literature base by exploring how suicide training impacts teachers' self-efficacy, expectations, and the overall value they place on their role in suicide prevention (i.e., attitudes). Gaining a better understanding of the relationship between these variables may provide a foundation for targeted training and future examinations of gatekeeper behaviors since self-efficacy, expectations, and attitudes precede behavioral change (Bandura, 1982).

A Social Cognitive Theory Perspective

Bandura's Social Cognitive Theory (SCT; 1982, 1989) identifies self-efficacy as an individual's belief in their ability to influence change; individuals will avoid activities they believe are beyond their capabilities, but they will engage in activities they believe they are capable of performing. Thus, perceived self-efficacy influences subsequent behavior (Bandura, 1982). It is therefore important to understand teachers' self-efficacy in relation to their ability to engage in suicide prevention and intervene with children and youth who are at risk. Similarly, outcome expectations are outcomes an individual anticipates occurring if they engage in an activity (Bandura, 1982, 1989). Outcome expectations interrelate with self-efficacy so that "in any given instance behavior would be best predicted by considering both self-efficacy and outcome beliefs" (Bandura, 1982, p. 140). In other words, if teachers believe they will not make a difference in preventing a student from attempting suicide, it is unlikely they will intervene through suicide prevention activities. In contrast, if teachers feel confident in their ability to intervene with a student at risk of suicide *and* they believe that intervening with suicidal students will have positive outcomes on students' well-being, they are more likely to engage in suicide prevention and gatekeeping behaviors. Similarly, it is important to consider how behaviors are connected to value systems (Bandura, 1989). Thus, outcome values (i.e., the personal value teachers place on youth suicide prevention and their role in the process) are an important aspect to consider when examining teachers' attitudes toward suicide prevention (Stickl Haugen et al., 2020).

SCT provides a foundation for exploring the theoretical connections between self-efficacy, outcome expectations, and outcome values. In consideration of the present study, there is a need for empirical research to evaluate potential associations between these variables, observed as gatekeeper training and participants' self-efficacy and attitudes, since they are critical elements impacting subsequent intervention behaviors (Holmes et al., 2021). Yet, few studies have investigated how these constructs may relate with one another following gatekeeper training.

Teachers' Exposure to Student Suicide

As noted, scholars have examined the impact of suicide prevention training on teachers' self-efficacy and attitudes toward suicide prevention, yet few studies have investigated how these constructs may interrelate and be associated with one another. Moreover, there is limited research on how teachers' exposure to student suicidality may relate to their self-efficacy, outcome expectations, and suicide prevention training outcomes. Given the high rates of youth suicide, it is likely teachers will work with students who express suicidal thoughts or be exposed to a student's death by suicide. Considering the central role that teachers play in suicide prevention, it is crucial to consider the potential impact of students'

suicidal behavior on teachers (Kolves et al., 2017). Research suggests that it is common for teachers to encounter children and youth at risk for suicide with roughly one-third to one-half of the teachers in various samples reporting they have encountered a student who disclosed suicidal thoughts to them (Anderson, 2004; Freedenthal & Breslin, 2010; Hatton et al., 2017; King et al., 1999). Teachers who reported encountering a student with suicidal thoughts were more likely to have received suicide prevention training and had higher self-efficacy or confidence to engage in suicide prevention than those who had not (Freedenthal & Breslin, 2010; Hatton et al., 2017; King et al., 1999). However, it is unknown if these results are generalizable to a national sample of teachers as findings were from small and restrictive samples, such as high school health teachers ($N=228$; King et al., 1999), teachers in one city ($N=120$; Freedenthal & Breslin, 2010), and teachers in one school district ($N=74$; Hatton et al., 2017).

Notably, only one study, examined the impact of a student's death by suicide on teachers. Kolves et al. (2017) found that approximately 35.9% of a sample of Australian teachers ($n=52$) were exposed to a student death by suicide resulting in altered response to potentially suicidal students, heightened awareness of suicide risk, and increased caution or defensiveness. Considering the significant impact a student suicide can have on teachers, examining if differences exist in teachers' self-efficacy, attitudes toward suicide prevention, and outcome expectations or values among a national sample of teachers who have been exposed to suicidality compared to those who have not is warranted. Moreover, since some teachers have reported reluctance in their role as gatekeepers to engage in youth suicide prevention (Nadeem et al., 2011; Ross et al., 2017), there is a need to understand if teachers may be more or less averse to engage in suicide prevention if they have encountered students at risk of suicide or experienced a student death by suicide.

The Present Study

Scholars have highlighted the "urgent need to identify ways to effectively reduce suicide among adolescents" and have called for additional empirical research to examine the effect of school-based suicide prevention training on important outcomes, such as improving attitudes toward youth suicide (Mo et al., 2018, p. 21). Considering the increasing rates of suicide risk among students since the COVID-19 pandemic (Rico et al., 2022) and the important role that teachers play as gatekeepers in suicide prevention efforts, the purpose of the present study was to explore the relationship between teachers' exposure to student suicide and teachers' suicide prevention training outcomes in order to inform future suicide prevention efforts in K-12 school settings. Additionally, the current study investigated the associations between suicide training and teachers' attitudes and self-efficacy related to prevention efforts since attitudes and self-efficacy are determinants of actions (Bandura, 1989).

Specifically, the researchers aimed to explore (1) differences in attitudes and self-efficacy related to suicide prevention among teachers who have experienced student suicidality and those who have not, and (2) how suicide prevention training is associated with teachers' self-efficacy and attitudes (i.e., outcome expectations and outcome values), including the specific ways in which these constructs may relate to one another. Based on social-cognitive theory and previous research, it is theorized that teachers' participation in suicide prevention training will be positively associated with their (a) self-efficacy to engage in suicide intervention (i.e., efficacy expectations) and (b) anticipated outcomes (i.e., outcome expectations) of intervening with children and youth at risk of suicide. In turn, it is

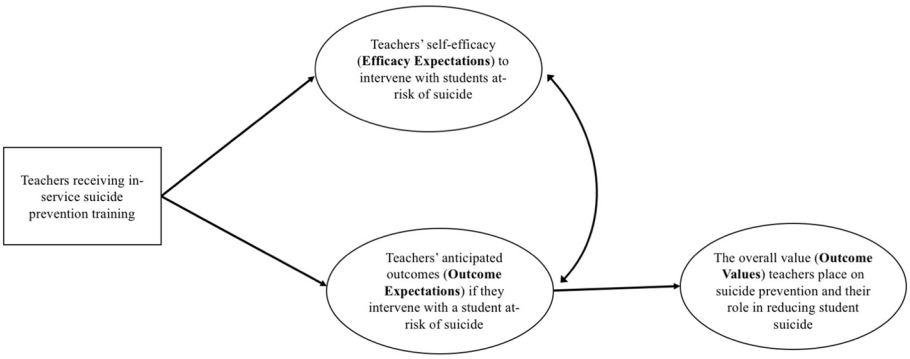

Fig. 1 Proposed theoretical model linking teachers' engagement in suicide prevention training to their efficacy expectations, outcome expectations, and outcome values

hypothesized that anticipated outcomes will have a positive association with outcome values or the overall value teachers place on reducing student suicide and their role in suicide prevention (see Fig. 1).

The following two research questions guided this study: (1) Are there differences in self-efficacy, outcome expectations, outcome values, gatekeeper reluctance, or suicide prevention training between teachers who have been exposed to a student death by suicide or a students' expression of suicidal thoughts compared to those who have not?; (2) What is the relationship between engaging in suicide training and teachers' levels of self-efficacy, outcome expectations, and outcome values?

Method

Procedures

Upon receiving university institutional review board approval, the researchers engaged in recruitment and data collection through Amazon Mechanical Turk (MTurk), a web-based platform where individuals volunteer to complete tasks or surveys for compensation. Reliability studies support that data obtained from MTurk produces reliable and valid results in social science research (Buhrmester et al., 2011; Holden et al., 2013). Participants were offered a $0.50 incentive to complete an online questionnaire through Qualtrics, which aligned with common MTurk compensation amounts (Buhrmester et al., 2011). Ethical guidelines were followed in the collection and archival of data. Specifically, informed consent was obtained before data collection. In addition, all data was de-identified, and data were kept in a password protected computer.

Participants

Participants in the current sample included 505 teachers in the United States. Inclusion criteria included any teacher currently teaching in a PreK-12th grade setting. Elementary teachers were included since suicide occurs among young children and suicide prevention is an important consideration for this age group (CDC, 2017b; Sheftall et al., 2016).

Of participants reporting demographics, the sample included roughly equal numbers of females ($n = 242$; 47.9%) and males ($n = 252$; 49.9%), with one participant (0.2%) identifying as non-binary/third gender and one identifying as 'other' (0.2%). The majority of participants identified as Caucasian/White ($n = 331$; 65.5%), followed by Black or African American ($n = 84$; 16.6%), Hispanic/Latinx ($n = 46$; 9.1%), Asian ($n = 44$; 8.7%), American Indian or Alaskan Native ($n = 11$; 2.2%), Other ($n = 2$; 0.4%), and Native Hawaiian or Other Pacific Islander ($n = 1$; 0.2%). Overall, participants ranged in experience from being a first year teacher to 36 years of experience ($M = 6.12$, $SD = 5.11$) and had a mean age of 33.21 (range 19 to 80; $SD = 8.31$). Participants worked across various school settings including 22 (4.4%) in alternative/multiple pathway schools, 36 in charter schools (7.1%), 145 (28.7%) in private schools, 286 (56.6%) in public schools, and 3 (0.6%) indicated 'other'. They also worked across all school levels including 211 in elementary schools (41.8%), 184 (36.4%) in middle schools, 157 (31.1%) in high schools, and 8 (1.6%) indicated 'other' (participants selected more than one level if they taught across multiple levels). The majority of participants worked in urban school settings ($n = 219$; 43.4%) followed by suburban ($n = 173$; 34.3%) and rural ($n = 100$; 19.8%).

Measures and Study Variables

Participants were asked to complete an online survey that included a general demographic questionnaire, the Teachers Expectations and Values for Suicide Prevention Scale (King et al., 1999; Stickl Haugen et al., 2020), and the Gatekeeper Reluctance Scale (Wyman et al., 2008).

General Demographic Form

Researchers administered a general demographic form to collect data regarding participants' demographic information (e.g., age, gender, ethnicity) and contextual information regarding variables related to their teaching experience (e.g., years of experience as a teacher, school setting, school context). The demographic form also included items regarding teachers' exposure to student suicidality (i.e., "has a student ever expressed suicidal thoughts to you?"), the death of a student by suicide (i.e., "have you ever been exposed to the death of a student by suicide?"), and suicide training (i.e., "have you attended any in-service training offered to teachers at your school or district on youth suicide in the past 5 years?"). Including suicide training recency was important since the benefits of training may diminish over time (Shtivelband et al., 2015).

Teacher Expectations and Values for Suicide Prevention Scale

The Teachers Expectations and Values for Suicide Preventions Scale (TEVSP; King et al., 1999; Stickl Haugen et al., 2020) is a 14-item self-report instrument that includes three subscales measuring teachers' *efficacy expectations* (self-efficacy to engage in suicide prevention), *outcome expectations* (anticipated outcomes of engaging in suicide prevention), and *outcome values* (the overall value teachers' place on suicide prevention efforts and their role in suicide prevention). Each item is measured on a 7-point Likert-type scale ranging from 1 (*strongly disagree)* to 7 (*strongly agree).* The three subscales include: (a) Efficacy Expectations (six items; e.g., "I believe I can ask a student at risk of attempting suicide if he/she is suicidal"); (b) Outcome Expectations (six items; e.g., "I believe if I

effectively offer support to a student at risk of attempting suicide it will reduce the change that the student will die by suicide"); and (c) Outcome Values (two items; e.g., "I believe as a teacher, one of the most important things I could ever do would be to prevent a suicidal student from dying by suicide"). The TEVSP has demonstrated evidence of reliability and convergent and discriminant validity (Stickl Haugen et al., 2020). Internal consistency was adequate in the current study ($\alpha_{\text{efficacy expectations}} = 0.816$; $\alpha_{\text{outcome expectations}} = 0.864$; $\alpha_{\text{outcome values}} = 0.708$).

Gatekeeper Reluctance Scale

The Gatekeeper Reluctance Scale (GRS; Wyman et al., 2008) was used to measure teachers' reluctance to engage in suicide prevention. The GRS is one subscale of a larger scale developed to investigate two divergent constructs of an individual's efficacy and their reluctance to engage as gatekeepers in suicide prevention. The GRS is measured on a 7-point Likert-type scale ranging from 1 (*strongly disagree)* to 7 (*strongly agree)* and includes nine items (e.g., "school teachers and staff should not be responsible for discussing suicide with students"). Higher scores on the GRS indicate greater hesitation or unwillingness to engage in suicide prevention and intervention. The GRS demonstrated evidence of reliability and content validity (Wyman et al., 2008), as well as strong internal consistency in the current study ($\alpha = 0.863$).

Data Screening

The *Statistical Package for Social Sciences* (SPSS; version 26.0) was initially used to test for assumptions and obtain descriptive statistics. To determine if data was appropriate for analysis to answer the research questions, the researchers tested the following assumptions: (a) missing data, (b) normality, (c) multicollinearity, and (d) linearity (Tabachnick & Fidell, 2019). First, the researchers assessed for missing data. There were no missing values identified in the TEVSP scale and only one item missing in the Gatekeeper Reluctance Scale, thus data were considered Missing Completely at Random and expectation maximization was used to impute this value (Scheffer, 2002). Univariate normality was assessed with visual inspection of quartile-quartile plots, histograms, and inferential tests of normality (i.e., Kolmogorov–Smirnov and Shapiro–Wilk statistics). Visual inspections and significant Kolmogorov–Smirnov and Shapiro Wilk statistics ($p < 0.01$) suggested data were non-normal. Finally, there were no correlations between variables at 0.80 or greater and scatter plots indicated linearity. Therefore, data were presumed to be appropriate for data analysis and non-normality was accounted for in the analytic methods.

Data Analysis

SPSS (version 26.0) was used for initial data analysis. The researchers examined descriptive statistics and correlations between variables to identify potential relationships and viability of the data to engage in additional analysis. To investigate group level differences between teachers who had been exposed to student suicidality and those who had not, the researchers employed non-parametric statistics. Considering the non-normality of data, Mann–Whitney U-tests were used to calculate group differences in efficacy expectations, outcome expectations, outcome values, and gatekeeper reluctance between (a) teachers who had experienced a student death by suicide, and (b) teachers who reported a student had expressed suicidal

Table 1 Descriptive statistics and correlations for teachers' expectations and values related to suicide prevention

Variables	Mean	SD	1	2	3	4
1. Efficacy expectations	5.26	1.05	–			
2. Outcome expectations	5.32	1.12	0.79**	–		
3. Outcome values	5.57	1.26	0.65**	0.70**	–	
4. Gatekeeper reluctance	3.56	1.30	− 0.11*	− 0.23**	− 0.33**	–

*Correlation is significant at the 0.05 level

**Correlation is significant at the 0.01 level

thoughts to them compared to teachers who had not experienced these events. Effect sizes were determined using an approximate value for *r*. Chi-square tests for independence were used to investigate differences in suicide prevention training between teachers who had been exposed to student suicidality (e.g., had a student express suicidal thoughts to them and experienced student death by suicide) and teachers who had not.

To investigate the relationships between suicide training and teachers' self-efficacy, outcome expectations, and outcome values the researchers examined incremental prediction by employing SEM in Mplus (Muthén & Muthén, 1998–2017). SEM refers to a group of related statistical procedures to examine a set of predictive relationships between variables (Kline, 2016; Tabachnick & Fidell, 2019), and is used to explain relationships among several variables (Hair et al., 2010). SEM includes the following steps: (a) model specification, (b) model identification, (c) model estimation, (d) model evaluation, and (e) model modification (Crockett, 2012). In the present study, the researchers developed a theoretical model based on previous literature and research to determine the relationships between suicide prevention training, self-efficacy to engage in suicide prevention, outcome expectations, and outcome values (model specification; see Fig. 1). In order to test the model for identification purposes, the researchers employed a confirmatory factor analysis (CFA) to examine factor loadings, parameter estimates, and variables. To evaluate and modify the model as needed, the researchers used the following model fit indices: (a) chi-square (non-significant χ^2 indicates good fit); (b) relative chi-square (χ^2/df; ratio of chi-square to degrees of freedom less than 3:1 indicate adequate fit); (c) standardized root mean square residual (SRMR; < 0.08 considered good fit); (d) the root mean squared error of approximation (RMSEA; < 0.06 indicate good fit); (e) the comparative fit index (CFI; > 0.90 usually indicate good model fit); and (f) Tucker-Lewis Index (TLI; > 0.90 adequate fit, > 0.95 good fit; Bollen, 1989; Hair et al., 2010; Hu & Bentler, 1999).

Results

Descriptive Statistics

Initially, the researchers examined descriptive statistics (means and standard deviations) and correlations for efficacy expectations, outcome expectations, outcome values, and gatekeeper reluctance (see Table 1). On average, participants reported moderate levels of self-efficacy (5.26) in engaging in suicide prevention, as well as somewhat positive Outcome Expectations (5.32) and Outcome Values (5.56) regarding their role in preventing suicide.

Significant positive correlations were identified between Efficacy Expectations, Outcome Expectations, and Outcome Values with the highest correlation identified between Efficacy Expectations and Outcome Expectations ($r = 0.79$). Levels of Gatekeeper Reluctance were slightly below neutral (3.57), indicating mild levels of reluctance to engage in suicide prevention. Of note, significant negative correlations were identified with Gatekeeper Reluctance and the other variables suggesting that higher self-efficacy, positive outcome expectations, and positive outcome values are associated with lower levels of reluctance to engage in suicide prevention.

Teachers' Exposure to Suicide: Group Level Differences

The researchers investigated group level differences between teachers who experienced student suicidality and those who had not. In total, 26.9% of teachers ($n = 136$) reported they experienced a student death by suicide, whereas 352 (69.7%) reported they had not and 17 (3.4%) indicated they were not sure. In regard to student suicidal ideation, 36.4% ($n = 184$) reported a student expressed suicidal thoughts to them, whereas 292 (57.8%) had not and 29 (5.7%) were not sure. Teachers who experienced a student death by suicide reported statistically significant higher levels of reluctance to act as a gatekeeper in suicide prevention ($Mdn = 4.56$) compared to teachers who had not experienced a student death by suicide ($Mdn = 3.33$; U = 13,094.5, z = −7.77, $p < 0.01$, $r = 0.35$). No other significant differences were identified in efficacy expectations, outcome expectations, or outcome values. Similarly, teachers who indicated that students had expressed suicidal thoughts to them reported greater levels of reluctance to engage as a gatekeeper in suicide prevention ($Mdn = 4.22$) compared to those who had not experienced student suicidal ideations ($Mdn = 3.44$; U = 19,820.5, z = −4.82, $p < 0.01$, $r = 0.22$). A statistically significant difference in self-efficacy was also identified between teachers who indicated a student reported suicidal thoughts to them ($Mdn = 5.67$) and those who had not ($Mdn = 5.33$; U = 23,451.5, z = −2.34, $p < 0.05$, $r = 0.11$), although the effect size was small. Considering limitations in non-parametric statistics to miss potentially relevant differences in data (Pallant, 2016), *t*-tests were employed yielding the same results.

Lastly, chi-square tests for independence (with Yates' Continuity Correction) indicated that teachers who had experienced a student death by suicide [χ^2 (1, $n = 488$) = 34.15, $p < 0.001$, $phi = 0.27$] and those that reported a student had expressed suicidal thoughts to them [χ^2 (1, $n = 476$) = 53.41, $p < 0.001$, $phi = 0.34$] were significantly more likely to receive suicide training than those who had not been exposed to student suicidality.

Suicide Prevention Training Structural Equation Model

Measurement Model Results

To examine the relationship between suicide prevention training and teachers' expectations and outcomes, the researchers first employed CFA to investigate model identification and the factor structure of the TEVSP. Although the chi-square statistic was significant [χ^2 (74) = 169.10, $p < 0.001$], large sample sizes ($N > 400$) typically result in a significant result so scholars suggest additional indices should be considered (Mvududu & Sink, 2013). The additional fit indices suggested a good fitting model overall: relative $\chi^2 = 2.29$, CFI = 0.95, TLI = 0.94, RMSEA = 0.05, SRMR = 0.04.

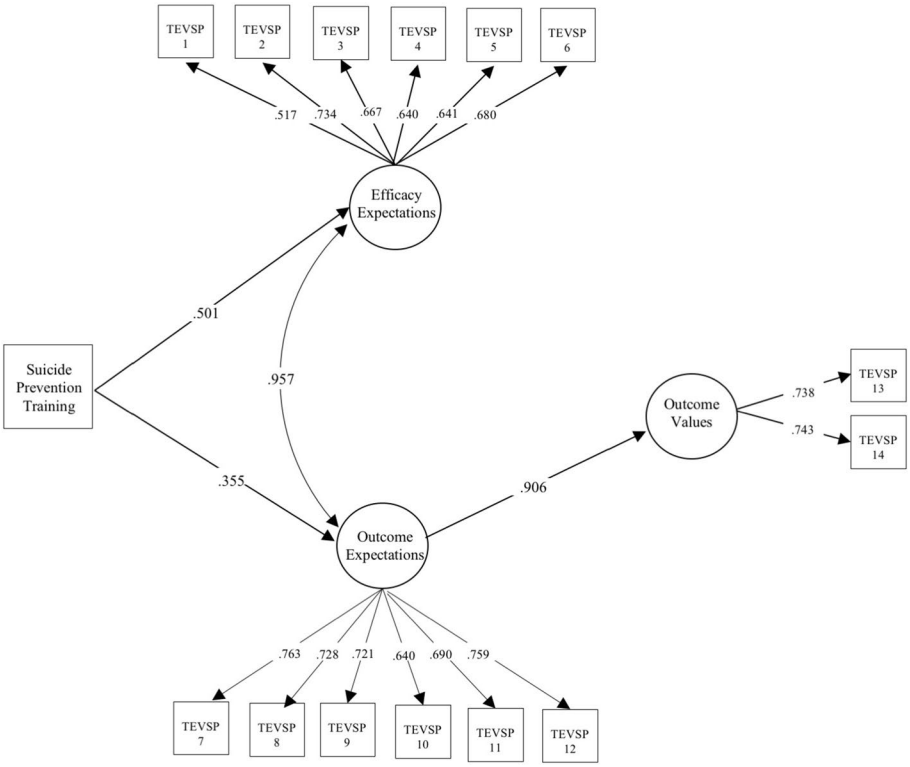

Fig. 2 Results of the structural equation model with standardized path coefficients depicting associations between suicide prevention training, efficacy expectations, outcome expectations, and outcome values

Structural Model Results

The researchers used SEM in order to test the theorized structural model and examine incremental prediction of the variables. The fit of the structural model (see Fig. 2) was satisfactory [χ^2 (87) = 194.420, $p < 0.000$; $\chi^2/df = 2.23$; CFI = 0.95; TLI = 0.93; RMSEA = 0.05; SRMR = 0.04]. Teachers' participation in suicide prevention training positively predicted Efficacy Expectations ($\beta = 0.501$, SE = 0.102, $p < 0.000$, 5.8% of variance explained) and Outcome Expectations ($\beta = 0.355$, SE = 0.098, $p < 0.000$, 2.9% of variance explained). Similarly, Outcome Expectations positively predicted Outcome Values ($\beta = 0.906$, SE = 0.038, $p < 0.000$, 82.1% of variance explained).

A closer examination of the unique variance explained by each variable suggested that Outcome Expectations accounts for all of the variance in the association between suicide prevention training and Outcome Values since suicide prevention training was not significantly associated with Outcome Values in and of itself ($\beta = -0.11$, $p = 0.19$, 1.2% variance explained).[1] Outcome Expectations uniquely explain 80.6% of the variance in Outcome Values when controlling for the other variables in the model. In other words, suicide prevention training did not show incremental prediction with Outcome Values beyond

[1] See Supplemental Table 1 highlighting unique variance for incremental prediction of each variable.

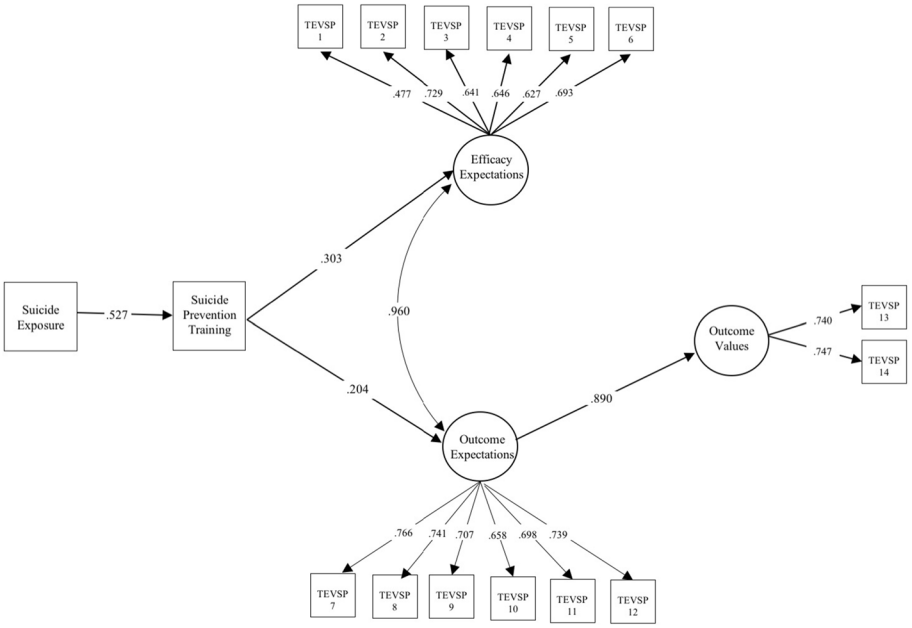

Fig. 3 Results of the structural equation model with standardized path coefficients depicting associations between teachers' suicide exposure, suicide prevention training, efficacy expectations, outcome expectations, and outcome values

Outcome Expectations. These results suggest that teachers' participation in suicide prevention training is positively associated with their level of self-efficacy to engage in suicide prevention and their positive anticipated outcomes of engaging in suicide prevention (i.e., Outcome Expectations). Moreover, positive Outcome Expectations is associated with overall Outcome Values where teachers recognize the importance of their role in suicide prevention.

Post-hoc Analysis

Considering the finding that teachers who experienced student suicidality (i.e., student expressing suicidal thoughts or student death by suicide) were more likely to receive suicide training, suicide exposure was added to the model in order to examine if the structural model remained intact. A continuous latent variable of suicide exposure was created by adding teachers' responses to the items, "has a student ever expressed suicidal thoughts to you?" and "have you ever been exposed to the death of a student by suicide?" where 0 = no and 1 = yes. Total exposure scores for the newly created latent variable could range from 0 (teachers who never experienced either of those events) to 2 (teachers who experienced both student suicidal ideation and student death by suicide). In total, 467 teachers responded to this question with 'yes' or 'no' and were included in the post-hoc analysis.

The fit of the structural model (see Fig. 3) was satisfactory [χ^2 (101) = 265.955, $p < 0.000$; $\chi^2/df = 2.63$; CFI = 0.91; TLI = 0.89; RMSEA = 0.06; SRMR = 0.05]. The path from suicide exposure to suicide training was significantly positive ($\beta = 0.527$, SE = 0.102,

$p < 0.000$, 18.5% variance explained). Teachers' participation in suicide prevention training positively predicted Efficacy Expectations ($\beta = 0.303$, SE = 0.061, $p < 0.000$, 9.2% variance explained) and Outcome Expectations ($\beta = 0.204$, SE = 0.060, $p = 0.001$, 4.2% variance explained). Similarly, Outcome Expectations positively predicted Outcome Values ($\beta = 0.89$, SE = 0.020, $p < 0.000$, 79.2% variance explained), suggesting the structural model remained similar when adding teachers' exposure to student suicide.

Discussion

The current study provides insight into the factors that may influence teachers' engagement in suicide prevention, including an examination of suicide prevention training outcomes and teachers' exposure to student suicidality. In the current sample, over one-fourth of the teachers experienced a student death by suicide (26.9%) and roughly one-third of teachers reported that a student disclosed suicidal ideation to them (36.4%), which is similar to rates found in other studies (Hatton, et al., 2017; Kolves et al., 2017). Thus, it is not uncommon for teachers to encounter children and youth who are at risk of suicide and teachers should be adequately prepared to engage in suicide intervention.

Findings indicated there were no significant differences in teachers' self-efficacy to engage in suicide prevention and intervention between those who experienced a student death by suicide and those who had not. In contrast, there were significant differences in self-efficacy between teachers who reported exposure to students' suicidal ideation compared to those who had not. Although previous research supports that teachers who encounter students at-risk of suicide have higher levels of efficacy or confidence to engage in suicide prevention (Freedenthal & Breslin, 2010; Hatton et al., 2017; King et al., 1999), the current study suggests that this difference does not extend to teachers who experience a student death by suicide. It may be that teachers who report exposure to student suicidal ideation have more experience engaging with suicidal youth and thus have greater confidence in providing support. In contrast, a student's death by suicide is final and teachers do not have the opportunity to retroactively engage in suicide prevention or intervention in order to increase their comfort with intervening with a student at risk of suicide. Moreover, many teachers may feel a sense of responsibility or guilt following a student's death by suicide (Kolves et al., 2017). Therefore, it may also be that a student's death by suicide feels like a failure for teachers to either detect warning signs or provide the students with support. Despite the lack of significant difference in self-efficacy between groups in the present study, Kolves et al. (2017) identified that 63.3% ($n = 31$) of teachers in their small sample who experienced a student death by suicide reported altered management or response to students at risk of suicide following the student's death. Therefore, more research is needed to identify the potential ways a student death by suicide may impact various aspects of teachers' engagement in suicide prevention.

A unique contribution of this study was the finding that teachers who experienced a student death by suicide or students' suicidal ideation reported higher levels of gatekeeper reluctance than those who had not. There may be several reasons for the increased reluctance. Teachers who have been exposed to student suicidality may be more aware of the prevalence of student suicide and feel more reluctant to take on the role of a gatekeeper given their many other responsibilities as a teacher (Ross et al., 2017). Similarly, teachers with exposure to student suicidality potentially have a greater understanding of students' risk for harm or death and may be hesitant to take on the immense responsibility to

intervene. In addition, reluctance may be related to teachers feeling uncomfortable, lacking training, or fearing they will make the situation worse (Hatton et al., 2017). Moreover, teachers have reported feeling increased caution and defensiveness following exposure to a student suicide (Kolves et al., 2017) and many teachers may fear legal repercussions of intervening with potentially suicidal students (Hatton et al., 2017).

Another important aspect of this study was the examination of the relationships between potential outcomes of suicide prevention training. Results supported the theorized structural model indicating that teachers participation in suicide prevention training is positively associated with their level of self-efficacy to engage in suicide prevention and intervention along with positive expected outcomes of engaging in this work. This finding aligns with Social Cognitive Theory (Bandura, 1989) supporting the connection between self-efficacy and outcome expectations, which are important precedents to behavioral change. Since there is limited evidence that suicide prevention training results in improved suicide intervention behaviors (Holmes et al., 2021; Torok et al., 2019), it is important for suicide prevention trainers to increase both self-efficacy and outcome expectations among participants. Although these variables are correlated, they are also distinct constructs that trainers should seek to enhance.

Interestingly, in the current sample, Outcome Expectations accounted for all of the variance in the association between suicide prevention training and Outcome Values where teachers recognize the importance of suicide prevention and their role in reducing student suicide. This structural model held among teachers who were exposed to student suicidality. Since teachers were more likely to receive training if they had experienced student suicidality both in the present sample and previous research (Freedenthal & Breslin, 2010), it is promising that the relationships between training outcomes held, even when the suicide exposure variable was added to the model. This suggests that suicide prevention training is associated with positive outcomes for both teachers who have been exposed to student suicide and those who have not. Since gatekeeper reluctance was higher among teachers who had been exposed to student suicidality, suicide prevention training may be particularly important for this group in order to enhance important outcomes such as self-efficacy, outcome expectations, and outcome values.

Implications for Youth Suicide Prevention

Findings from this study have important implications for suicide prevention training and supporting teachers in their role as gatekeepers for children and youth at risk of suicide. Considering the relationships among suicide training outcomes, suicide prevention trainers should be intentional to target specific outcomes in teachers' self-efficacy to engage in suicide prevention and their positive expected outcomes when they engage in suicide prevention and intervention. If training can increase these specific outcomes it is more likely that teachers will engage in actual suicide prevention behaviors (Bandura, 1989). Moreover, since outcome expectations are positively associated with outcome values, teachers are more likely to place a higher value on their role as gatekeepers when they perceive that positive results (e.g., saving a student's life) will come from their prevention efforts. Therefore, suicide training might include role-plays, real life scenarios, and actual practice to increase teachers' self-efficacy to support students at-risk of suicide. Emerging research supports that active learning strategies and behavioral rehearsal, such as role-plays, may help improve the effectiveness of short gatekeeper training and increase gatekeeper skills following training (Cross et al., 2011; Garraza et al., 2020). It is important that training

moves beyond the traditional *sit and get* mentality to include active learning, modeling, and practice (Hatton et al., 2017; Johnson & Parsons, 2012). Teachers have also reported that they lacked practical and specific training on warning signs of suicide, how to respond to students at-risk, and the referral process (Nadeem et al., 2011). Therefore, teachers would benefit from intentional training on particular signs of suicide risk and specific actions they should take when working with children and youth at risk of suicide, which may enhance their self-efficacy, rather than focusing on general awareness or an overview of broad generalized risk factors (Hatton et al., 2017; Nadeem et al., 2011).

Similarly, in order to enhance positive outcome expectations, it may be beneficial to provide teachers with real-life examples of how suicide intervention can save a student's life. These types of examples may be in the form of case studies, personal testimony, or examples of the positive outcomes that can result from teachers who actively engaged in suicide prevention efforts. Considering some teachers are reluctant to engage as a gatekeeper in suicide prevention (Ross et al., 2017), training should provide psychoeducation regarding the prevalence of youth suicide and frequency of teacher exposure to students' suicidality in order to increase buy-in and enhance understanding of the importance of their role. Since findings suggest that teachers who have been exposed to student suicidality may have a greater reluctance to engage in suicide prevention and intervention, it is also crucial to provide targeted support and training to this group of teachers in an effort to mitigate gatekeeper reluctance.

Limitations

Findings from this study should be interpreted within the context of important limitations. First, sample limitations need to be considered. Due to the nature of the sample recruitment, researchers were unable to gather response rates. Teachers who placed a higher value on suicide prevention may have been more drawn to the study than teachers from the general population. Additionally, the majority of the participants self-identified as Caucasian/White (65.5%), limiting the generalizability of these results. Future research would benefit from exploring suicide training outcomes with a more diverse sample. Second, there was limited information regarding the length or type of suicide prevention training participants had engaged in. Therefore, there is a need to examine specific aspects of suicide prevention training and relationships between outcomes. Certain questions remain such as what pedagogy or activities increase participants' self-efficacy or outcomes expectations (e.g., role plays, didactic training, Socratic methods)? Therefore, researchers can conduct randomized control trials to examine the outcomes of different trainings that implement various types of pedagogy and processes. Third, given the self-report nature of the survey, social desirability may have influenced responses. Finally, the cross-sectional design of this study limits inferences of causality. For example, although differences existed in gatekeeper reluctance between teachers who experienced student suicidality and those who had not, there is a need for additional research to explore other aspects or variables that may contribute to teachers' gatekeeper reluctance. Additionally, it is important to note that since this study was non-experimental in nature, there is a need for additional longitudinal and experimental research in order to draw directional and causal conclusions about the variables in the proposed structural model (Weems & Stickle, 2012). Examining mediation in cross-sectional research can result in bias estimates since causal effects emerge over time (Maxwell & Cole, 2007). Therefore, there is a need to investigate the temporal ordering and

causal relationships between the variables theorized in the proposed model and examine if Outcome Expectations mediates the relationship between suicide prevention training and Outcome Values. Longitudinal studies may also identify changes in teachers' self-efficacy, outcome expectations, outcome values, and the impact of exposure to student suicidality over time.

Conclusion

Teachers hold a primary role in suicide prevention efforts for children and youth, and scholars have highlighted the critical need for strategies to increase the effectiveness of suicide prevention training for teachers (Hatton et al., 2017). Results from this study support the importance of developing training that targets specific outcomes regarding teachers' self-efficacy and outcome expectations, which ultimately influence the overall value teachers place on their role as gatekeepers. Moreover, since it is not uncommon for teachers to encounter students at-risk of suicide or to experience a student death by suicide, it is critical to support teachers' continued role and engagement in suicide prevention in the aftermath of these events. Although suicide risk is an increasing concern among children and youth, effective training and teacher involvement in suicide prevention may contribute to addressing this growing epidemic.

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Declarations

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