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SUICIDE GATEKEEPER TRAININGS: A CONTENT ANALYSIS

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by

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ABSTRACT

This study examines the efficacy and components of suicide gatekeeper trainings through a qualitative content analysis. The researcher addressed critical gaps in the existing literature concerning trainee demographics, knowledge improvement, self-efficacy, and training components. Employing a deductive approach as suggested by Krippendorff (2019), the study synthesizes findings across varied training modalities and providers assessing their impact on enhancing trainee knowledge and self-efficacy in suicide prevention and intervention. Results indicate that such trainings consistently improve knowledge and self-efficacy across diverse professional groups. The research also uncovers substantial methodological inconsistencies in current studies, particularly in the reporting of trainee demographics and training components. These inconsistencies hinder effective comparison and evaluation of training outcomes, emphasizing the necessity for standardized metrics and detailed, transparent reporting to enhance replicability and facilitate meta-analyses. This study contributes to the field by offering a comprehensive critique of existing literature, highlighting the effectiveness of gatekeeper trainings while identifying areas for methodological improvement to better ascertain their real-world impact on suicide prevention.

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Chapter 1

Introduction

In 2021, suicide ranked as the 11th leading cause of death in the United States, with notable disparities across different demographic groups (Centers for Disease Control and Prevention [CDC], 2023a; Xu et al., 2022). Suicide is widely prevalent among the U.S. population across gender identity, age, veteran status, race and ethnicity, and other identifying factors. For example, women attempt suicide at a rate 1.78 times higher than men, and men are nearly 3.9 times more likely to die by suicide, largely due to the use of firearms (American Foundation for Suicide Prevention, 2023; CDC, 2023a). While some studies suggested no significant gender differences in factors like substance use or mental health diagnoses related to suicide attempts (Bommersbach et al., 2022), others argued that factors such as depression or substance abuse may impact men and women differently (Arsenault-Lapierre et al., 2004; Monnin et al., 2012; Oquendo et al., 2007). This inconsistency may suggest broader societal, cultural, or systemic influences contributing to the gender disparity in suicide rates.

One such societal contributor could be stigmas with gender. Addressing suicide patterns solely within a gender binary overlooks the unique challenges faced by LGBTQIA+ individuals, who experience heightened risks, particularly among those identifying as trans, nonbinary, or genderqueer. From data collected through national surveys, researchers indicated rates of suicidal ideation and attempts among LGBTQIA+ youth, with researchers finding significantly higher rates among trans and gender diverse adults compared to cisgender peers (Kidd et al., 2023; Kirakosian et al., 2023; The Trevor Project, 2023). Historical pathologizing of gender dysphoria and societal intolerance contribute to the mental health struggles and increased suicide risk within

the LGBTQIA+ community, highlighting the importance of understanding social and

environmental factors beyond individual identity (Mays & Cochran, 2001; Robles et al., 2021).

In addition to gender identity and sexual orientation, age is also a critical factor in suicide

risk. Suicide poses a significant risk for both youths aged 10-24 and older adults, particularly men

over 55. Among youth, over 20% have seriously considered suicide, often attributed to feelings of

social isolation and burdensomeness (Joiner, 2005; Pappas, 2023; Stone et al., 2023; Van Orden,

2010). For older adults, suicide rates increase notably after age 55, with factors such as chronic

illness, social isolation, and emotional suppression contributing significantly, particularly among

middle-aged white men (Bennett et al., 2023; Conejero et al., 2018; Garnett et al., 2023).

Sex, gender identity, and age are not the only identity factors considered when

researchers consider suicide risk. Experts in suicide prevention also explore how associations

among particular groups with shared experiences may be impactful. For example, U.S. veterans

exhibit a suicide rate 1.57 to 1.66 times higher than non-veterans, linked to elevated rates of

mental health issues and substance misuse, with depression, anxiety, and PTSD being prevalent

diagnoses among those who died from suicide (Morral et al., 2023; U.S. Department of Veterans

Affairs, 2022). Traumatic experiences in military service, including moral injury, contribute

significantly to suicide risk, characterized by shame, guilt, and social isolation (Bryan et al.,

2018; Prosek & Burgin, 2020). Researchers aim to discern whether military service directly

causes or amplifies existing mental health concerns and substance use disorders, impacting

veterans' suicidal tendencies (Bryan et al., 2018; Prosek & Burgin, 2020).

Finally, researchers have noted trends in suicide among minoritized racial and ethnic

groups. For example, the suicide rates among Black individuals, particularly youth and adult men,

have seen significant increases over the past two decades, with Black females in high school

exhibiting a much higher likelihood of attempting suicide compared to their white counterparts

(Adams et al., 2023; CDC, 2023a; Gaylor et al., 2023; OMH, 2023a). In a systems approach to examining data, researchers have looked at financial factors as an additional contribution alongside racial identity. Poverty is a significant factor influencing mental health status among Black individuals, with those below the poverty line being twice as likely to report psychological distress (OMH, 2023a). Additionally, American Indian/Alaskan Native (AI/AN) populations face high suicide rates, with rates among AI/AN females aged 10-19 five times higher than among White peers, possibly exacerbated by behavioral and relational concerns such as intimate partner violence and substance misuse (OMH, 2023b; Stone et al., 2022). Researchers must critically examine potential biases in data collection and consider systemic oppression when studying suicide risk factors among marginalized racial and ethnic populations (OMH, 2023a; OMH, 2023b).

Statement of the problem

Despite the statistics and demand for interventions and prevention measures (American Foundation for Suicide Prevention, 2023; Center for Disease Control and Prevention 2021), various helping professionals (e.g., medical professionals, first responders, military personnel, social workers, school personnel, and mental health professionals) often lack sufficient training and readiness to conduct suicide interventions (Almeida et al., 2021; Liebling-Boccio & Jennings, 2013; Miller et al., 2013; Osteen et al., 2014; Stover et al., 2021). Those helping professionals are also referred to as natural helpers, whose who "already have close communication with [persons at risk] either through their ongoing job role or by virtue of personal qualities, such as warmth and empathy" (Wyman et al., 2008, p. 115). According to the Suicide Prevention Resources Center (SPCR; 2018), the most common way natural helpers are prepared to prevent and

intervene in suicide is through specialized trainings called suicide gatekeeper trainings, or simply,

gatekeeper trainings. Researchers have found that two of the most critical outcomes for such

gatekeeper trainings are trainee knowledge (Quinnett, 1999; Wyman et al., 2008) and trainee self-

efficacy (Hawgood et al., 2022; Labouliere et al., 2015). Trainee knowledge refers to a

gatekeeper trainee's knowledge about suicide risk factors, protective factors, warning signs,

intervention strategy, and intervention application (Quinnett, 1999; Wyman et al., 2008). Trainee

self-efficacy refers to a gatekeeper trainee's comfort in providing interventions to those at risk of

suicide. Researchers have found that improving trainee knowledge alone does not increase the

likelihood that a gatekeeper will provide interventions (Hawgood et al., 2022; Labouliere et al.,

2015). Though dozens of gatekeeper trainings exist, and despite the staggering statistics on

suicide prevalence, most helping professionals reported feeling insufficiently prepared to help a

person at risk of suicide (Almeida et al., 2021; Liebling-Boccio & Jennings, 2013; Miller et al.,

2013; Osteen et al., 2014; Stover et al., 2021). This deficiency in training can be attributed to

several potential factors including cultural norms, religious beliefs, and complications related to

liability and responsibility.

The first possible reason is deeply rooted in the cultural norms of the U.S., which tend to

avoid open discussions about death and instead focus on maintaining youthfulness and prolonging

life (Bengoechea-Fortes et al., 2023; Pitman et al., 2018; van der Burgt, 2021). Suicide remains a

taboo subject (Chandler, 2022; McManus, 2005; van der Burgt, 2021), and certain religious

beliefs associate it with severe moral consequences (Mason, 2021), adding to the reluctance of

addressing it openly. Moreover, the complexity of liability and responsibility surrounding suicide

interventions can be intimidating and may appear risky to many helping professionals (Lee &

Bartlett, 2005; Sabe, et al., 2021). For example, school counselors are traditionally trained to

focus on career and college guidance, rather than being prepared to provide crisis assessment and

intervention (Allen et al., 2002; Becnel, et al., 2021; Springer et al., 2020; Wachter Morris & Barrio Minton, 2012), which further hinders their readiness to handle suicide interventions.

Second, researchers have consistently revealed that many helping professionals feel ill-equipped and unprepared to offer essential services to individuals in crisis, especially within medical care providers and educational settings (Heyman et al., 2015; Shannonhouse et al., 2017; Smith et al., 2014a; Tallaksen et al., 2013). Lack of formal suicide intervention training is a common issue, partly due to the prevailing societal notion that discussing suicide may plant the idea in people's minds, leading them to attempt it (Pitman, et al., 2018; van der Burgt, 2021). As a result, some helping professionals shy away from conducting interventions, believing they lack the necessary experience and training (Evans & Price, 2013). The concerning prevalence of suicide demands a more proactive approach in training and preparing helping professionals to effectively address and intervene in such crises.

Finally, there is a lack of clarity regarding the efficacy and fit of gatekeeper trainings, as well as a lack of clarity regarding trainee outcomes. This lack of clarity poses a barrier to accessing the most appropriate gatekeeper training for those who wish to be trained and help others at risk. To increase the number of natural helpers sufficiently trained in and confident to provide suicide prevention and intervention, gatekeeper trainings need to be clearly evaluated and thoroughly compared against each other. Once natural helpers have a clear idea of which training is the best fit for their needs and the needs of those they serve, the barrier is removed, and more natural helpers can be trained. The more natural helpers trained in suicide prevention and intervention, the more deaths by suicide can be prevented.

Purpose of the study

The purpose of this study is to investigate the impact of suicide gatekeeper trainings on trainee knowledge and self-efficacy through a content analysis of empirical studies, including quasi-experimental designs. By conducting a systematic examination of existing empirical evidence, the researcher seeks to achieve several overarching objectives. First, to identify the natural helpers who receive gatekeeper trainings. Understanding the target audience, as well as identifying if there are natural helpers who do not receive gatekeeper trainings is critical to establishing best practices for suicide prevention and intervention across disciplines. Second, the researcher seeks to identify which suicide gatekeeper trainings yield the most favorable outcomes for trainees in terms of knowledge enhancement and self-efficacy improvement. Finally, to identify and provide a clear and comprehensive comparison of training factors and outcomes including training duration, training format, and educational methods across different suicide gatekeeper training programs. Through this study the researcher aspires to contribute to the proliferation of gatekeepers by enabling more individuals to be educated consumers on the possible training in suicide prevention and intervention, particularly that meet their needs as a trainee. This study seeks to critically analyze the gatekeeper trainings available, which may allow helping professionals to access the most appropriate training. If more professionals and natural helpers access training, this study may contribute to addressing the urgent public health concern posed by suicide rates.

Research questions

This study will examine the following qualitative research questions:

- Who are the natural helpers receiving gatekeeper training?

- To what extent do gatekeeper trainings improve trainee knowledge?

- To what extent do gatekeeper trainings improve trainee self-efficacy?

- What are the various components of gatekeeper trainings?

Significance of the study

This study holds significant interdisciplinary implications for both the field of suicide prevention and the broader public health landscape. By investigating the impact of suicide gatekeeper trainings on trainee knowledge and self-efficacy through a content analysis of empirical studies, this research addresses a critical gap in understanding the effectiveness of suicide prevention and intervention trainings. The findings of this study have the potential to inform the development and refinement of suicide gatekeeper training programs, allowing for the identification of strategies that yield the most favorable outcomes in terms of knowledge enhancement and self-efficacy improvement. The researcher aims to provide a comprehensive comparison of training outcomes including type of natural helper, training duration, training format, and educational methods across different suicide gatekeeper training programs. This comparison could offer valuable insights into the relative efficacy of various training approaches. Such comparisons are essential for practitioners, policymakers, and organizations seeking to implement evidence-based suicide prevention initiatives, enabling them to make informed decisions about which training programs to prioritize and invest resources in. By contributing to the proliferation of trained gatekeepers, this study addresses a pressing need within communities for individuals equipped to intervene effectively in suicidal crises. The empowerment of more

individuals with the knowledge and skills to prevent suicide can have far-reaching implications for reducing suicide rates and saving lives.

Limitations of the study

One limitation of this content analysis study is the scope of the analysis itself. Due to the focus on existing empirical studies, the study may not capture the full range of suicide gatekeeper training programs or interventions available. This limitation could potentially restrict the generalizability of the findings to all suicide prevention efforts, particularly those that may not have been subject to empirical evaluation published in scholarly literature. Another limitation pertains to the quality and reliability of the available empirical studies included in the analysis. Variability in study methodologies, sample sizes, and outcome measures across studies may introduce biases or confounding factors that could impact the accuracy and robustness of the conclusions drawn from the content analysis. There is also a risk of publication bias, as the selection of studies for the content analysis is limited to those published in academic journals. Studies with statistically significant findings or positive outcomes may be more likely to be published, leading to an overrepresentation of certain types of interventions or programs in the literature. This bias could influence the perceived effectiveness of suicide gatekeeper training programs identified in the content analysis.

Many of the included studies may provide only cross-sectional or short-term data on the impact of suicide gatekeeper training programs. The absence of longitudinal data limits the ability to assess the long-term effectiveness and sustainability of these programs in terms of knowledge retention and continued self-efficacy among trainees. The content analysis may not fully account for variability in trainee characteristics, such as prior experience or training in mental health,

which could influence the effectiveness of suicide gatekeeper training programs. Additionally, the extent to which trainee characteristics interact with program outcomes may not be fully explored in the available literature. Finally, the content analysis may not adequately consider contextual factors that could influence the effectiveness of suicide gatekeeper training programs, such as organizational support, community resources, or cultural considerations. Failure to account for these factors could limit the applicability of the findings to diverse settings and populations.

Definition of terms

Contagion: "Suicide risk associated with the knowledge of another person's suicidal behavior, either firsthand or through the media. Suicides that may be at least partially caused by contagion are sometimes called 'copycat suicides'" (SPRC, 2018).

Gatekeeper: "A person who is able to identify and refer individuals who may be struggling with a mental health crisis, such as suicidal ideation" (Gould et al., 2003, p. 387).

Gatekeeper training: "Programs that teach individuals who routinely have personal contact with many others in their community (i.e., gatekeepers) to recognize and respond to people at potential risk of suicide" (SPRC, 2018).

Helping professions: "Occupations that provide health and education services to individuals and groups, including occupations in the fields of psychology, psychiatry, counseling, medicine, nursing, social work, physical and occupational therapy, teaching, and education" (APA, 2018a).

Natural helpers: "Those who already have close communication with [persons at risk] either through their ongoing job role or by virtue of personal qualities, such as warmth and empathy" (Wyman et al., 2008, p. 115).

Non-suicidal self-injury (NSSI): "The intentional destruction of one's own body tissue without suicidal intent and for purposes not socially sanctioned" (Nock & Favazza, 2009, p. 10).

Self-efficacy: "The conviction that one can successfully execute the behavior required to produce the outcomes" (Badura, 1977, p. 193).

Suicidal ideation (SI): "Thoughts about or a preoccupation with killing oneself' (APA, 2018b).

Suicidality: "The risk of suicide, usually indicated by suicidal ideation or intent, especially as evident in the presence of a well-elaborated suicidal plan" (APA, 2018c).

Suicide: "The act or an instance of taking one's own life voluntarily and intentionally" (Merriam-Webster, 2024).

Suicide prevention: "Activities implemented prior to the onset of an adverse health outcome (e.g., dying by suicide) and designed to reduce the potential that the adverse health outcome will take place." (SPRC, 2018).

Suicide intervention: "An activity or set of activities designed to decrease risk factors or increase protective factors." (SPRC, 2018)

Postvention: "Activities following a suicide to help alleviate the suffering and emotional distress of the survivors, and prevent additional trauma and contagion" (SPRC, 2018).

Chapter 2

Review of the Literature

Suicide poses a significant and complex challenge, demanding a multifaceted approach for effective prevention and intervention. In this chapter, the researcher offers a comprehensive exploration of suicide, beginning with an examination of prevailing data, trends, and statistics in the United States and globally that serve as crucial navigational markers in understanding the gravity of the issue. Next, theoretical frameworks illuminate the diverse lenses through which suicide is conceptualized, providing essential guidance for the development of targeted prevention and intervention strategies. The focus then turns to the concept of natural helpers, individuals commonly trained to offer crucial assistance to those at risk of suicide. This section unveils the profiles of these natural helpers and highlights their pivotal role in supporting those at risk of suicide. The researcher then shifts to a critical review of prevalent suicide prevention and intervention trainings referred to as gatekeeper trainings, dissecting the methodologies employed, the theories that underpin them, and the strengths and limitations of each. The chapter then transitions to an exploration of the intricate process of evaluating the effectiveness of these gatekeeper trainings, considering nuanced factors beyond trainee knowledge and trainee self-efficacy. Next, the researcher explores critical intersections of training duration, training format, and education methods. Lastly, the chapter lays the groundwork for future research endeavors, pinpointing potential avenues that could enrich an understanding of suicide prevention and intervention strategies, thereby advancing the collective mission to combat this pressing public health concern.

Suicide statistics

According to the World Health Organization (WHO) 2023 report, there are over 700,000 deaths by suicide every year globally. Over 77% of those deaths occur in low- and middle-income countries, and that suicide is the fourth leading cause of death for youth aged 15-29 across the globe. While the United States is considered one of the wealthiest countries in the world, suicide remains one of the leading causes of death (Centers for Disease Control and Prevention [CDC], 2023a; Xu et al., 2022). The researcher for this paper and project will focus on U.S. populations. According to the CDC, the most common means used in deaths by suicide are firearms (55%), suffocation (26%), and poisoning (12%) (CDC, 2023a). In 2021, suicide was the 11th leading cause of death in the United States (CDC, 2023a; Xu et al., 2022). However, not all sections of the U.S. population are impacted equally by suicide. There are several populations at greater risk than others, and contextual reasons for those disparities. Therefore, suicide rate should be considered with an additional demographic lens of gender, sexual orientation, age, race and ethnicity, and veteran status.

Men and women

While women tend to attempt suicide at a rate 1.78 times higher than men (Bommersbach et al., 2022), men die by suicide at a rate nearly 3.9 times higher than women (American Foundation for Suicide Prevention, 2023; CDC, 2023a). This difference is largely accepted to be due to the means by which suicide is attempted, namely that men are significantly more likely to use more lethal means, such as firearms while women tend to use strangulation and poisoning

(CDC, 2023a). The lethality of firearms makes the likelihood of a suicide attempt resulting in death more likely (AFSP, 2023a; Xu et al., 2022).

Aside from the variance in lethality of means, researchers disagree about key risk factors and how they are impacted by gender. Some researchers have found no significant differences between men and women who attempted suicide when considering substance use or mental health diagnoses (Bommersbach et al., 2022). Other researchers have concluded the opposite, that women are more likely than men to attempt suicide if they have certain diagnoses such as depression or borderline personality disorder (Arsenault-Lapierre et al., 2004; Monnin et al., 2012; Oquendo et al., 2007). Still other researchers have found that substance use disorders are more likely to increase risk of suicide attempt for men than for women (Oquendo et al., 2007; Monnin et al., 2012). This inconsistency in the literature may indicate that relational, cultural, environmental, or systemic influences play a role in the disparity of suicide attempts and deaths by suicide between men and women.

LTBTQIA+

It is important to note that speaking about differences in suicide patterns on a gender binary does not allow for the nuance of the uniquely oppressed and marginalized experience of LGBTQIA+ individuals. LGBTQIA+ people are at a high risk for suicide, particularly those who identify as trans, nonbinary, gender queer, or others who do not identify with the gender they were assigned at birth. A recent national survey found that 41% of LGBTQIA+ youth age 13-24 have seriously considered suicide in the past year, and that 14% of LGBTQIA+ youth age 13-24 attempted suicide in the past year (The Trevor Project, 2023). One research team found that 17%-26% of trans and gender diverse (TGD) adults have seriously considered suicide in the last year

compared to their cisgender peers at 6-7% (Kirakosian et al., 2023). Another team of researchers estimated that 40% of TGD adults have attempted suicide at least once in their lifetime (Kidd et al., 2023).

The significant disparity for suicide risk between LGBTQIA+ and cisgender, heterosexual individuals is a critical line of inquiry. There is a consensus among leading mental health professionals that sexuality and gender identity are far more complex than a simple binary allows (Smith et al., 2014b). However, gender dysphoria is pathologized and is still included in the *Diagnostic and Statistical Manual of Mental Disorders* (APA, 2022). This inconsistency coupled with general social, moral, and religious intolerance of gender and sexual differences contribute to a deficit view of LGBTQIA+ individuals (Mays & Cochran, 2001; Robles et al., 2021). Many LGBTQIA+ individuals experience social isolation and rejection from family, community, and society, contributing to poor mental health and increasing risk of suicide (The Trevor Project, 2023). Rather than viewing their gender identity or sexual orientation as the root of suicidal thoughts and behaviors, researchers recognized the social isolation and rejection as significant if not primary contributing factors (Mays & Cochran, 2001; Robles et al., 2021).

Age

Suicide is the second leading cause of death for youth aged 10-24 (Stone et al., 2023). The American Psychological Association (APA) noted that more than 20% of youth have seriously considered suicide in the past year (Pappas, 2023). Much of this suicidal ideation is thought to be due to social isolation and fear of being a burden, two phenomena that suicide researchers have termed thwarted belongingness and perceived burdensomeness (Joiner, 2005, Van Orden, 2010).

Among older adults, risk of suicide increases dramatically over the age of 55 (Garnett et al., 2023). Specifically, among men aged 55 and older, the suicide rate increased with increasing age, from 26.6 per 100,000 (ages 55–64) and 26.1 (ages 65–74), to 38.2 per 100,000 (ages 75–84) and 55.7 per 100,000 (age 85 and older; Garnett et al., 2023). The National Institute of Health (NIH) indicated that the primary factors contributing to this trend, specifically for older adults aged 75 and older are likely related to chronic illness and chronic pain, social isolation, reduced mobility, and other factors of aging that contribute to depression (Conejero et al., 2018). Other researchers indicated that middle aged White men 55 and older experience a rapid increase in suicidality due to emotion suppression, financial stressors, loss of employment, and other factors tied to masculinity and manhood in U.S. society (Bennett et al., 2023; Conejero et al., 2018).

Disability

People with disabilities, whether visible or invisible, face distinct challenges that can increase their risk of suicide. The CDC reported that in 2021, adults with disabilities were three times as likely to report suicidal ideation compared with adults without disabilities (CDC, 2023) Research indicates that the suicide risk varies significantly depending on the nature and origin of the disability (Marlow et al., 2021; Milner et al., 2019). Individuals with visible disabilities, such as physical impairments, may experience social stigma and isolation, which are significant risk factors for suicidal behavior (Dohle et al., 2023). In contrast, those with invisible disabilities, including mental, intellectual, or developmental disorders, often encounter barriers to accessing mental health services, compounded by societal misunderstanding and insufficient support (Dohle et al., 2023; Marlow et al., 2021; Milner et al., 2019). Furthermore, the suicide risk differs between congenital disabilities, present from birth, and acquired disabilities, which occur later in

life. Those with acquired disabilities might struggle with the sudden changes in their life circumstances and identity, which can lead to depression and suicidal thoughts (Dohle et al., 2023).

Race and ethnicity

One of the most concerning trends in suicide is among racial identities, particularly the rapid rise among Black individuals. Between 2001 and 2021, there was a 36.6% increase in suicide rates among Black youth aged 10-24 (Gaylor et al., 2023). In that same time span, there researchers reported a 25.3% increase in the number of suicide deaths among Black adult men (Adams et al., 2023; CDC, 2023a). According to the Office of Minority Health (OMH; 2023a), in 2019 Black females in grades 9-12 exhibited a 60% higher likelihood of attempting suicide than their White female counterparts. It should be noted that mental health status is influenced by the poverty level, and those Black individuals residing below the poverty line are twice as likely to report significant psychological distress compared to those with incomes exceeding twice the poverty level (OMH, 2023a). Researchers must critically examine potential biases in data collection and consider systemic oppression when studying suicide risk factors among marginalized racial and ethnic populations (OMH, 2023a; OMH, 2023b).

Another minoritized racial group with high rates of suicide is the American Indian/Alaskan Native (AI/AN) population. The death rate from suicide among the AI/AN population is 20% higher than that rate among White individuals (MHO, 2023b). In 2019, the suicide death rate among AI/AN females aged 10-19 was five times higher than among their White peers (MHO, 2023b). The CDC noted that studies found a higher rate of behavioral and relational concerns among this population including intimate partner violence and substance

misuse (Stone et al., 2022). It is critical to view these statistics in context and understand that those higher rates of intimate partner violence and substance misuse also come with higher rates of systemic oppression, poverty, lower education, food and housing insecurity, and lack of access to medical and mental health care (Sarche & Spicer, 2008; Snowden et al., 2023). To understand these and other risk factors that increase suicide among the AI/AN group, researchers must ask critical questions regarding the potential bias among the data gathered on this population as well as how systemic oppression and generational trauma have impacted the risk factors (Giordano et al., 2020).

Veteran status

U.S. veterans demonstrate a suicide rate 1.57 to 1.66 times higher than non-veterans when adjusted for age and gender (Morral et al., 2023). Researchers indicated this high number is strongly correlated with high rates of mental health concerns and substance misuse. The U.S. Department of Veterans Affairs (VA; 2022) cited that "Among [veterans] who died from suicide in 2020, the prevalence of depression diagnoses was 35.2%, anxiety 25.6%, posttraumatic stress disorder (PTSD) 24.4%, alcohol use disorder 19.6%, cannabis use disorder 8.3%, bipolar disorder 7.5%, opioid use disorder 4.9%, personality disorder 4.6%, and schizophrenia 4.5%" (p. 9). It is worth noting that some of these mental health concerns and diagnoses may have been pre-existing, and some may have been acquired due to or during military service.

As with other populations with incidents of trauma, researchers must conceptualize the suicide risk within the context of veterans' traumatic experiences in military service. One of the key traumatizing aspects of military service is moral injury, considered one of the invisible wounds of war (Prosek & Burgin, 2020). Moral injury in the context of veterans refers to a strong

sense of shame, guilt, and social isolation and rejection correlated with suicide risk in veterans (Bryan et al., 2018). To better understand the nuance in suicide risk among veterans, researchers must determine if military service causes or merely exacerbates existing concerns such as mental health diagnoses and substance use disorders, and how that distinction impacts a veteran's suicidal thoughts and behaviors.

Suicide as a taboo subject

In the United State there is still a great deal of stigma surrounding the topic of suicide (Chapple et al., 2015, Keller et al., 2019). There are several reasons that culturally suicide is viewed as a taboo subject. First, society often stigmatizes mental health issues, viewing them as personal weaknesses, which contributes to the reluctance to openly discuss suicide (O'Brien et al., 2017). Cultural norms often emphasize the importance of maintaining a façade of strength and resilience, discouraging open conversations about vulnerability and mental health struggles (Bifftu et al., 2019; O'Brien et al., 2017; Wang & Yue, 2023). One of the primary impediments for many individuals is how certain religious beliefs may associate suicide with moral failure, creating an environment where discussing it is perceived as challenging established moral codes (Bifftu et al., 2019). Another reason is how general lack of awareness and understanding about mental health issues like suicide contributes to a hesitancy to address the topic openly. Media portrayal of suicide can sometimes sensationalize or oversimplify the issue, perpetuating myths and inhibiting informed discussions (Wang & Yue, 2023). There exists a misconception that discussing suicide may plant the idea in vulnerable individuals, a notion not supported by empirical evidence but perpetuated by societal myths (Bifftu et al., 2019; Wang & Yue, 2023). Another aspect of suicide as a taboo is fear of liability. Professionals, educators, and individuals

sometimes fear legal repercussions if they broach the subject of suicide, leading to avoidance

rather than open communication (Bifftu et al., 2019). Societal norms that discourage open

discussion of difficult topics, coupled with the fear of causing discomfort, contribute to a

prevailing culture of silence surrounding suicide.

Summary of suicide statistics

Understanding the nuanced suicide risk factors across various demographic groups is

critical for developing effective prevention and intervention strategies. By delving into the

specific challenges faced by various subgroups, such as differences in sex, gender, sexual

orientation, age, race and ethnicity, and veteran status, one gains insight into the complexities of

societal, cultural, and individual factors that contribute to increased suicide rates. Recognizing

these distinct vulnerabilities not only underscores the importance of tailored approaches to suicide

prevention but also highlights the urgent need for comprehensive support systems that address the

diverse needs of marginalized populations. By addressing the unique challenges faced by each

group, researchers can work towards fostering inclusive and effective strategies that strive to

reduce the devastating impact of suicide across communities.

In order to address the national epidemic of suicide, researchers must have a theoretical

framework through which to conceptualize suicide. Theories can offer frameworks for how to

consider suicidal thoughts, behaviors, risk factors, and can also help contextualize suicide within

populations of concern. The following section includes a description of the prevailing theories of

suicide through which researchers and gatekeepers can develop and implement measures to

prevent suicide deaths.

Theories of suicide

The following section includes an overview of the eight leading theories of suicide, including a brief description of each theory. Those descriptions detail each theory's central tenets, empirical support, strengths, and limitations. The eight theories discussed include the biological theories (Mann et al., 1999), sociological theory (Durkheim, 1897), hopelessness theory (Beck et al., 1975), psychache theory (Shneidman, 1993), escape theory (Baumeister, 1990), biosocial theory (Shearn & Linehan, 1994), interpersonal-psychological theory (Joiner, 2005), and the social-ecological suicide prevention model (SESPM; Cramer & Kapusta, 2017). Understanding the theory of suicide that is used in gatekeeper trainings can help researchers better evaluate the effectiveness and benefits of such trainings.

Biological theories of suicide

Central to the biological theories of suicide primarily are the tenets highlighting a biological and neurological causes of suicidal thoughts, feelings, and behaviors (Mann, 2003; Mann et al., 1999). Researchers who developed these theories asserted that suicidal tendencies are intricately linked to genetic, biochemical, and neurobiological factors (Mann, 2003; Mann et al., 1999). From this theoretical perspective, researchers place a primary emphasis on the biological underpinnings of suicidal behaviors, suggesting that vulnerabilities in an individual's genetic makeup, neurotransmitter regulation, and neurobiological functioning contribute significantly to the risk of engaging in self-harm (Caspi et al., 2003; Mann, 2003; Oquendo & Mann, 2000).

Developers of the biological theories posit that disturbances in neurotransmitter function, genetic predispositions, and alterations in brain structures play pivotal roles in shaping an

individual's susceptibility to suicidal thoughts and actions (Joiner et al., 2002, Oquendo & Mann, 2000). This perspective underscores the importance of exploring the biological markers that may act as predictors of suicide risk, acknowledging the intricate interplay between genetic factors and neurobiological processes in the manifestation of suicidal behaviors (Caspi et al., 2003; Mann, 2003; Oquendo & Mann, 2000).

Tenets and empirical support of the theory

Developers of the biological theories highlight tenets focusing on the belief that disturbances in neurotransmitter function, genetic predispositions, and alterations in brain structures significantly contribute to an individual's vulnerability to suicidal behavior (Caspi et al., 2003; Mann, 2003; Oquendo & Mann, 2000). Researchers who hold this perspective acknowledge that an individual's genetic makeup may influence not only their predisposition to mental health disorders but also their potential to exhibit suicidal tendencies (Caspi et al., 2003; Mann, 2003; Oquendo & Mann, 2000). This identified connection and vulnerability establishes a foundation for targeted biological interventions. Empirical support for biological theories is derived from extensive research exploring biological markers and genetic factors associated with suicidal tendencies (Caspi et al., 2003; Mann et al., 1999). Researchers use neuroimaging to examine structural and functional brain abnormalities, alongside genetic investigations, have provided valuable insights into the biological correlates of suicide risk. These findings contribute to the ongoing dialogue surrounding the development of targeted interventions informed by the biological foundations of suicidal behaviors (Joiner et al., 2002, Oquendo & Mann, 2000).

Of those targeted intervention efforts, researchers of biological theories have focused largely on pharmacological treatments. For example, researchers have noted promising results in

studies examining the efficacy of ketamine infusion for short-term reduction of suicidality (Witt et al., 2020). Further research is needed to elucidate the long-term effects of ketamine as a treatment for suicidality (Witt et al., 2020). Other examples of pharmacological approaches to suicide prevention include Lithium, known for its mood-stabilizing properties and Clozapine, which targets suicidality and impulsive behaviors may offer avenues for intervention (Gould et al, 2019). Other researchers have conducted studies on electroconvulsive therapy (ECT), a psychiatric treatment involving controlled seizures induced by electrical currents to alleviate severe depression and suicidal ideation (Faedda et al., 2010; Pinna et al., 2018). Researchers noted the effectiveness of ECT when other treatments have failed. Despite potential side effects (e.g., nausea, headaches, slight memory loss), ECT has shown rapid and significant improvements in mood and suicide risk, making it a valuable option in suicide prevention strategies (Faedda et al., 2010; Pinna et al., 2018).

Strengths and limitations of the theory

One notable strength of biological theories lie in their provision of a tangible and scientifically grounded perspective on suicide. By identifying specific biological factors contributing to suicide risk, this theory facilitates the development of targeted interventions, potentially improving preventive strategies (Caspi et al., 2003; Mann, 2003; Oquendo & Mann, 2000). Moreover, its multidimensional approach broadens the understanding of suicide beyond psychosocial factors, incorporating biological elements that may be crucial in the comprehensive assessment of suicide risk (Joiner et al., 2002, Oquendo & Mann, 2000). Another strength of the biological theories of suicide is in the need for interdisciplinary approach including both medical and mental health support.

Despite its strengths, critics argue that the biological theory may oversimplify the complex phenomenon of suicide by attributing it solely to biological factors (Joiner et al., 2002; Selby et al., 2014). Such reductionism might neglect the nuanced interplay between biological vulnerabilities and psychosocial stressors. For example, trans youth have a much higher suicide rate than cisgender peers, and trans youth also face unique challenges such as isolation and rejection from family, friends, and community (The Trevor Project, 2023). Viewing trans youth from a purely biological lens, omits the important structural oppression that influences mental health. This reductionism limits biological theory researchers in their application to comprehensively address the diverse factors influencing suicide across populations (Joiner et al., 2002; Selby et al., 2014). Additionally, biological theories may face challenges in explaining the variability in suicidal behaviors observed in individuals with similar genetic and neurobiological profiles, highlighting the need for a more holistic understanding of suicide risk (Selby et al., 2014).

Sociological theory of suicide

The sociological theory of suicide is derived from Emile Durkheim's (1897) foundational work in which he posited that suicide rates are intricately connected to societal dynamics and social integration (Durkheim et al.,1966). Durkheim considered suicide as a social phenomenon shaped by broader cultural norms, structures, and interpersonal relationships. At its core, the sociological theory contends that suicide is not solely an individual act, but a phenomenon influenced by social forces (Durkheim et al., 1966). Durkheim categorized suicide into four types: egoistic, altruistic, anomic, and fatalistic. Each type represents a distinct relationship between the individual and society. For instance, egoistic suicides occur when individuals experience a lack of

social integration, illustrating the theory's focus on societal connections. Altruistic suicide refers to a person who ends their life for what they believe to be the greater good or for the benefit of others. Anomic suicide is a response to social or financial breakdown or ruin such as bankruptcy. Finally, fatalistic suicide is generally enacted by a person who feels they have no other way to escape oppressive conditions such as a person who feels they cannot measure up to society's scrutiny and unrealistic expectations (Durkheim et al., 1966).

Tenets and empirical support of the theory

Central to the sociological theory of suicide are the tenets highlighting the influence of social integration, cultural norms, and societal structures on suicide rates (Durkheim et al., 1966). Durkheim argued that individuals with weaker social ties or facing disruptions in societal norms may be more prone to suicidal tendencies. The classification of suicide types helps illustrate how varying degrees of social integration contribute to distinct patterns of self-destructive behavior (Durkheim et al., 1966). According to Durkheim, understanding societal determinants of suicide can guide tailored interventions to address broader social issues contributing to self-harm (Durkheim et al., 1966).

Contemporary researchers aligned with the sociological theory have explored the impact of social factors on suicide rates across diverse populations. Some researchers have investigated the correlations between social integration, community support, and suicide risk, offering insights into preventive strategies (Aliverdinia & Pridemore, 2009; Fei, 2010). Researchers have also explored the impact of cultural stigma surrounding mental health and help-seeking behaviors on suicide rates within specific ethnic or cultural groups (Abdel-Khalek, 2004). Additionally, researchers have analyzed the influence of economic inequality, urbanization, and social

dislocation on suicide risk, highlighting the complex interplay between macro-level societal factors and individual vulnerabilities. By highlighting these multifaceted relationships, sociological researchers can provide a holistic understanding of suicide beyond individual pathology, emphasizing the importance of addressing social determinants in suicide prevention efforts.

Strengths and limitations of the theory

A notable strength of the sociological theory lies in its recognition of suicide as a social phenomenon (Geraldo, 2020; Mueller & Abrutyn, 2016). By focusing on the influence of social structures and connections, theorists can expand their understanding of suicide beyond individual pathology. This sociological perspective allows for the development of community-based interventions, fostering social cohesion and support as preventive measures (Geraldi, 2020; Mueller & Abrutyn, 2016). Furthermore, the sociological theory acknowledges the importance of considering broader societal contexts in understanding suicidal behavior, incorporating factors such as cultural norms, economic conditions, political systems, and historical contexts (Durkheim, 1966). This contextual understanding provides a more comprehensive framework for addressing suicide and can inform culturally sensitive prevention strategies (Aliverdinia & Pridemore, 2009; Fei, 2010).

Critics argue that the sociological theory may downplay individual psychological factors contributing to suicidal behaviors. The emphasis on societal influences might oversimplify the complex interplay between individual vulnerabilities and social forces (Mueller & Abrutyn, 2016; Portes, 1998). For example, a person who is deeply socially connected may in some circumstances feel overburdened and experience financial, social, and emotional pressures

(Portes, 1998). Additionally, the theory's classification of suicide types may be criticized for its rigidity, as real-life cases often involve a combination of social and individual factors, challenging the theory's ability to provide a nuanced understanding of suicide (Mueller & Abrutyn, 2016; Portes, 1998).

Hopelessness theory of suicide

Developers of the hopelessness theory of suicide proposed that a pervasive sense of hopelessness is a key precursor to suicidal ideation and behaviors, and indeed may be a better indicator of suicide risk than depression (Beck et al., 1975). Aaron Beck is largely credited as being the developer of this theory. According to Beck and colleagues, this theory centers on the belief that individuals are more likely to contemplate and engage in suicide behaviors when they perceive their circumstances as overwhelmingly bleak and devoid of any potential improvement (Abramson et al., 2000; Beck et al., 1997; 1985). The hopelessness theory posits that the critical factor in suicidal tendencies is a profound sense of hopelessness as both a state and an attitude. Beck and colleagues posited that a person in a state of hopelessness is at greater risk of suicide due to their inability to experience hope for the future (Abramson et al., 2000; Beck et al., 1997; 1985). This theory aligns with cognitive models of psychopathology, emphasizing the role of negative cognitive schemata and biased information processing in shaping an individual's outlook, leading to a belief that future outcomes will be consistently negative (Abramson et al., 2000; Beck et al., 1997; 1985).

Tenets and empirical support of the theory

Central tenets of the hopelessness theory of suicide include the emphasis on hopelessness as a cognitive state that predisposes individuals to suicidal thoughts (Beck et al., 1975). Researchers postulated that individuals with a negative cognitive bias are more susceptible to interpreting life events in a hopeless manner, creating a fertile ground for the emergence of suicidal ideation (Abramson et al., 2000; Beck et al., 1997; 1985). Researchers supporting the hopelessness theory have empirically explored the relationship between hopelessness, depression, and suicide risk (Beck et al., 1985, 1990). Wolfe and colleagues (2017) found that hopelessness was a strong predictor of suicide risk among adolescents diagnosed with depression. Other researchers employing measures of hopelessness have also demonstrated its predictive validity in identifying individuals at elevated risk for suicidal behaviors (Beck et al., 1985, 1990).

Cognitive interventions targeting hopelessness have also shown promise in reducing suicide risk (Abramson et al., 2000). Researchers have used cognitive interventions aimed at challenging maladaptive thought patterns and promoting coping strategies to mitigate suicidal ideation and behavior (Abramson et al., 2000). Beck himself developed Cognitive-behavioral therapy (CBT) in the midst of developing the hopelessness theory of suicide (Beck, 1975). Mental health clinicians use CBT to target cognitive distortions such as those associated with hopelessness (Abramson et al., 2000; Beck et al., 1997; 1985).

Strengths and limitations of the theory

A notable strength of the hopelessness theory is the emphasis on a specific cognitive factor, hopelessness, as a crucial predictor of suicidal tendencies (Beck et al., 1985, 1990). This

focused approach allows for targeted interventions that address distorted cognitive patterns, potentially mitigating suicide risk. Additionally, the theory's applicability across various populations enhances its utility in diverse clinical settings. For example, addressing the root of hopelessness will vary from person to person and from group to group, allowing for cultural adaptability rather than rigidity in prescriptive steps.

Critics argue that the hopelessness theory may not capture the entirety of suicidal behaviors, as other factors, such as impulsivity or social context, may play significant roles (Abramson et al., 2000; Troister & Holden, 2010). The exclusive focus on hopelessness may oversimplify the multifaceted nature of suicide risk (Troister & Holden, 2010). Critics noted that the theory's effectiveness in predicting suicide risk might vary across different cultural contexts, emphasizing the need for cultural sensitivity in its application (Beck et al., 1985, 1990; Troister & Holden, 2010). Some critics also suggested that the hopelessness theory may not adequately address the role of protective factors in mitigating suicidal behavior, such as social support networks, coping skills, and access to mental health resources (Lester, 2012).

Psychache theory of suicide

The psychache theory of suicide was developed by Edwin S. Shneidman, who posited that unbearable psychological pain, termed *psychache*, is the primary driver of suicidal thoughts and behaviors (Shneidman, 1993). In this conceptualization, the intensity of emotional suffering becomes the central focus, emphasizing the individual's subjective experience of anguish and torment (Shneidman, 1993; 1996). Shneidman asserted that individuals contemplate suicide when confronted with overwhelming psychological pain. This theory moves beyond traditional risk factors and diagnostic categories such as social or biological contexts. Shneidman instead

prioritized an experiential understanding of the individual's internal emotional distress as the catalyst for suicidal ideation (Shneidman, 1993; Troister & Holden, 2010). It should be noted that psychache is different from hopelessness in that hopelessness is a state of being in an emotion while psychache is an experience of deep psychological pain.

Tenets and empirical support of the theory

Central tenets of the psychache theory of suicide include the recognition of psychache as a distinct and measurable psychological construct linked to suicidal tendencies (Shneidman, 1993; 1996; Montemarano et al., 2018; Troister & Holden, 2010). He defined psychache specifically as "unbearable psychological pain-hurt, anguish, soreness, and aching" (Shneidman, 1993, p. #). It is worth noting that while one might conceive of this type of psychological pain deriving from severe trauma such as death of a very close loved one, a terminal diagnosis, financial ruin, or living in an active warzone, there is no set list or even requirement for what qualifies as psychache. This lack of threshold is because psychache is a state of being and is entirely subjective. Shneidman (1993, 1996) underscored that individuals in the grip of psychache are more likely to perceive suicide as a viable means of escape from their emotional agony, with the intensity of psychache serving as a reliable predictor of suicide risk.

Researchers aligned with the psychache theory have explored the correlation between psychache and suicidal behaviors (Montemarano et al., 2018; Troister & Holden, 2010). Some researchers have gone so far as to developed psychometric assessments to measure psychache (Montemarano et al., 2018). This work has provided valuable insights into the role of psychache as a determinant of suicide risk. Interventions targeting the alleviation of psychache have shown

promise in reducing suicidal ideation and promoting psychological well-being (Montemarano et al., 2018).

Strengths and limitations of the theory

The psychache theory's strength lies in its emphasis on the subjective experience of psychological pain as a key motivator for suicidal thoughts (Shneidman, 1996; Troister & Holden, 2010). By acknowledging the individual's internal distress, this theory provides a nuanced understanding of suicide, allowing for interventions that directly address the emotional suffering at the core of suicidal ideation. Another major strength of this theory is that it is one of few suicide theories that have an assessment for measuring the phenomena of interest (Montemarano et al., 2018).

Critics contend that psychache theory, while valuable in understanding the subjective experience of distress, may not fully capture the complexity of suicide risk, particularly in cases where external factors contribute significantly (Montemarano et al., 2018; Troister & Holden, 2010). Additionally, the subjective nature of psychache poses challenges in standardizing assessments and interventions, requiring careful consideration of individual differences in the experience of emotional pain (Montemarano et al., 2018; Troister & Holden, 2010).

Escape theory of suicide

The escape theory of suicide was developed by Roy F. Baumeister. He conceptualized suicide as a means of "escape from aversive self-awareness" (Baumeister, 1990, p. 90). He posited that individuals may perceive suicide as an escape from circumstances they find

overwhelmingly distressing, providing a reprieve from their perceived unendurable reality

(Baumeister, 1990). While both the psychache theory (Shneidman, 1993) and the escape theory

acknowledge the desire for escape as a central aspect of suicidal behavior, they differ in their

emphasis: the psychache theory highlights the subjective experience of psychological pain as the

primary motivator, while the escape theory focuses on the desire to flee from external stressors or

intolerable situations. Escape theory suggests that suicide is driven by the desire to break free

from an unbearable situation (Baumeister, 1990). Individuals contemplating suicide may view it

as a last-resort mechanism to escape insurmountable emotional pain, external stressors, or a

combination of both. The theory emphasizes the individual's perception of suicide as a solution to

their immediate and seemingly inescapable distress (Baumeister, 1990).

Tenets and empirical support of the theory

Central tenets to the escape theory of suicide include the idea that suicide is perceived as

a viable means of escape when individuals feel trapped or overwhelmed by their circumstances

(Baumeister, 1990; Vohs & Baumeister, 2000). This perspective underscores the subjective

nature of suicidal ideation, emphasizing that what may seem like manageable problems to others

can feel insurmountable to those contemplating suicide. Researchers aligned with the escape

theory have explored the correlation between feeling trapped and engaging in suicidal behaviors

(Baumeister, 1990; Vohs & Baumeister, 2000). Other researchers have focused on the cognitive

mechanisms at play in the decision-making process leading individuals to view suicide as an

escape route, shedding light on factors influencing this perception (Dean et al., 1996; Dean &

Range, 1999). Baumeister and associates have explored the root causes of perceived entrapment

as potential means to mitigate suicidal tendencies (Baumeister, 1990; Vohs & Baumeister, 2000).

Researchers have indicated that individuals experiencing chronic stress or facing seemingly insurmountable challenges are more likely to consider suicide as a way out (Baumeister, 1990; Vohs & Baumeister, 2000). These findings suggest that interventions targeting coping mechanisms and problem-solving skills may prove beneficial in reducing suicidal ideation among those who feel trapped by their circumstances. Additionally, researchers have found that perceptions of hopelessness and lack of control are strongly associated with viewing suicide as an escape, further highlighting the importance of addressing these underlying psychological factors (Dean et al., 1996; Dean & Range, 1999). By understanding the cognitive processes and subjective experiences driving suicidal thoughts, mental health professionals can tailor interventions to effectively address the unique needs of individuals contemplating suicide as a means of escape.

Strengths and limitations of the theory

The escape theory's strength lies in its focus on the subjective experiences of individuals contemplating suicide (Dean, 1996; Wallack, 2007). By highlighting the perception of suicide as an escape from distressing situations, the theory provides insights into the cognitive processes underlying suicidal ideation (Dean, 1996; Wallack, 2007). This perspective opens avenues for interventions that address the specific factors contributing to individuals' sense of entrapment. Another strength of the escape theory is in the treatment focus on self-regulation (Baumeister, 1990; Vohs & Baumeister, 2000). This treatment method may feel like a more accessible and slightly less stigmatized course of action than a treatment requiring prescription medication or other more medically focused treatments.

Critics argue that the escape theory may oversimplify the multifaceted nature of suicide by primarily focusing on the perception of escape (Dean, 1996; Wallack, 2007). The theory may not fully capture the complexity of suicide risk, especially when individuals face a combination of internal and external stressors. Some of those stressors can include situations and circumstances completely outside a person's control, that yet still lead to a sense of failure, overwhelm, and inescapability. Additionally, interventions based on this theory may need to account for the dynamic and evolving nature of individuals' perceptions of their circumstances (Dean, 1996; Wallack, 2007).

Biosocial theory of suicide

The biosocial theory of suicide was developed from the work of Marsha Linehan whose research focuses on borderline personality disorder (BPD) and the development of dialectical behavior therapy (DBT; Brown, 2006; Shearn & Linehan, 1994). She posited that difficulty in regulating intense emotions plays a pivotal role in the development of suicidal tendencies. Linehan (1993) suggested that individuals who struggle to manage overwhelming emotions may turn to suicide as a maladaptive coping mechanism to escape or alleviate their emotional distress. She also stated that suicide is closely tied to the inability to regulate and cope with intense emotions effectively (Linehan, 1993; Shearn & Linehan, 1994). The focus on regulation and coping gave this this theory the unofficial title of emotional dysregulation theory (Brown, 2006; Selby et al., 2014). The theory aligns with broader perspectives on emotion regulation, emphasizing its significance in understanding self-harming behaviors and suicidal ideation.

Tenets and empirical support of the theory

Central tenets of the biosocial theory of suicide include the recognition that individuals who experience emotion dysregulation may be at an increased risk for suicidal ideation and attempts (Linehan, 1993; Shearn & Linehan, 1994). The theory underscores the importance of understanding the specific ways in which difficulties in managing emotions contribute to the vulnerability of individuals in the face of life stressors. Researchers aligned with the biosocial theory of suicide have explored the connection between emotion dysregulation and suicidal behaviors across diverse populations (Brown, 2006; Selby et al., 2014). They found that increases in emotion dysregulation are positively correlated with increases in suicidal behavior across populations (Brown, 2006; Selby et al., 2014).

Researchers have investigated the role of specific emotional states, such as overwhelming sadness or anger, in the escalation of suicidal ideation (Linehan, 1993; Shearn & Linehan, 1994). One research team reported that intense emotions combined with the inability to regulate then was linked to an increase in self harming behaviors, including suicidal behaviors. (Nixon et al., 2002). Interventions focusing on enhancing emotion regulation skills have been explored for their potential in reducing suicide risk (Brown, 2006; Linehan, 1993; Selby et al., 2014). In particular, DBT has been shown to be effective for treating suicidal behaviors for those with emotional dysregulation (Brown, 2006; Selby et al., 2014; Shearn & Linehan, 1994).

Strengths and limitations of the theory

The biosocial theory's strength lies in its emphasis on a specific and modifiable factor of emotion dysregulation as a critical contributor to suicidal tendencies. Through this lens, Linehan

offers a comprehensive framework that integrates biological, psychological, and environmental

factors to understand suicidal behaviors (Wagner et al., 2021). Another strength is that it may

help reduce stigma surrounding mental health by providing a clear framework for understanding

and treating emotion dysregulation and suicidality. By pinpointing the role of emotions in suicide

risk, the theory allows for targeted interventions aimed at improving emotion regulation skills and

mitigating the risk of self-harm (Brown, 2006; Selby et al., 2014; Shearn & Linehan, 1994).

Critics argue that while emotion dysregulation is a significant factor, it may not be the

sole determinant of suicidal behaviors (Selby et al., 2014). The theory might benefit from

considering the interaction between emotion dysregulation and other factors, such as social

context or cognitive processes, to provide a more comprehensive understanding of suicide risk

(Brown, 2006; Selby et al., 2014). While the theorist does acknowledge the interplay between

biological, psychological, and environmental factors, Linehan's primary emphasis is on the

correlation and even exacerbating relationship between a person's inability to regulate their

emotions and their suicidal behaviors. A final limitation to this theory is in the prescriptive

treatments, namely DBT. Interventions based on this theory may need to account for individual

differences in the experience and expression of emotion dysregulation (Brown, 2006; Selby et al.,

2014).

Interpersonal-psychological theory of suicide

The interpersonal-psychological theory of suicide (IPTS) was developed by Thomas

Joiner (2005). In this theory he integrates interpersonal factors with individual psychological

traits to explain the emergence of suicidal thoughts and behaviors (Joiner, 2005). Joiner posited

that the combination of perceived burdensomeness, thwarted belongingness, and acquired

capability for self-harm collectively make significant increases in a person's risk of suicide

(Joiner, 2005). He specified that thwarted belongingness is the "experience of feeling alienated

from valued social groups, such as peers and family" and that perceived burdensomeness is the

"perception that the self is so incompetent that one's presence is a liability to others" (Joiner,

2005, p. 24). These definitions help clarify the interplay between the interpersonal and the

psychological aspects of this theory (Joiner, 2005).

Tenets and empirical support of the theory

Central tenets of the interpersonal-psychological theory of suicide include the belief that

individuals contemplating suicide experience a sense of burdensomeness, perceiving themselves

as liabilities to others (Joiner, 2005). Simultaneously, they feel a lack of belongingness, a sense of

isolation from meaningful social connections (Joiner, 2005). Joiner also introduced the concept of

acquired capability, asserting that repeated exposure to painful or fear-inducing experiences

desensitizes individuals to the physical and emotional pain associated with self-harm (Joiner,

2005). The final central tenant is the acquired capability for self-harm. Joiner noted that this

acquired capability includes the bypassing of the natural survival instinct, and is a sign of great

distress (Joiner, 2005).

Researchers have found the interpersonal-psychological theory useful in exploring the

predictive factors of suicide (Bryan et al., 2011; Ma et al., 2016; Monteith et al., 2013). Some of

those predictive factors include social isolation or rejection as in the case for many LGBTQAI+

individuals as well as cooccurring disorders such as depression, anxiety, and psychotic disorders

(Ma et al., 2016; Monteith et al., 2013). Researchers have also examined the utility of these

factors in various populations, contributing to a better understanding of the theory's applicability,

particularly among military populations (Bryan et al., 2011; Monteith et al., 2013). Interventions informed by the theory aim to target these specific factors to mitigate suicide risk.

Strengths and limitations of the theory

The strength of interpersonal-psychological theory lies in its comprehensive approach, integrating social and psychological elements to explain suicide risk (Ma et al., 2016). By highlighting the interpersonal dynamics of burdensomeness and belongingness alongside the individual's acquired capability for self-harm, the theory offers a nuanced understanding of suicidal behaviors (Ma et al., 2016). This nuanced understanding facilitates the development of interventions that address both the social and psychological aspects of suicide risk (Joiner et al., 2009, Selby et al., 2014). In many ways Joiner's work expands on that of Durkheim, giving this theory an interdisciplinary lens as opposed to a purely medical or mental health lens (Selby et al., 2014). Interdisciplinary approaches to complex problems like the suicide epidemic are critical to effective treatment and mitigation efforts (Ma et al., 2016, Shim et al., 2021).

Critics argue that while the theory provides valuable insights, it may not account for the full spectrum of suicide risk factors, such as cultural influences or impulsivity (Ma et al., 2016, Shim et al., 2021). Additionally, the acquired capability component may not be universally applicable, requiring further exploration of its relevance across diverse populations (Ma et al., 2016, Shim et al., 2021). For example, Joiner's assertions regarding acquired capability focus on bypassing or overriding the natural survival instinct but does not account necessarily for neurological or psychological variance in that respect. As with any theoretical framework, the interpersonal-psychological theory may benefit from ongoing refinement and adaptation to

enhance its predictive and explanatory power (Ma et al., 2016, Selby et al., 2014; Shim et al., 2021).

Social-ecological suicide prevention model (SESPM)

The social-ecological suicide prevention model (SESPM) is not a theory but rather a working model (Cramer & Kapusta, 2017). Developers of SESPM advocate for a comprehensive approach to suicide prevention, considering the intricate interplay of individual, interpersonal, community, and societal factors (Cramer & Kapusta, 2017). SESPM is designed to conceptualize and respond to the complexity of suicide risk and emphasizes interventions at multiple levels of the social-ecological system to create a more encompassing and effective preventive strategy (Alchin et al., 2019; Cramer & Kapusta, 2017; Durkin et al., 2020). SESPM developers have posited that successful suicide prevention strategies must address factors at different levels of the social-ecological system (Cramer & Kapusta, 2017). Researchers of this approach consider many factors including individual aspects such as mental health and coping skills, interpersonal elements like social support and relationships, community factors including access to mental health resources, and broader societal influences such as stigma and policy (Cramer & Kapusta, 2017; Durkin et al., 2020). Developers of this model call for an integrated and holistic approach to suicide prevention that recognizes the interconnected nature of these various factors (Alchin et al., 2019; Cramer & Kapusta, 2017; Durkin et al., 2020).

Tenets and empirical support of the theory

Central tenets of SESPM include the acknowledgment that suicide is a complex phenomenon shaped by factors across multiple levels of the social-ecological system (Cramer & Kapusta, 2017). Developers of this model emphasize the interconnectedness of individual, interpersonal, community, and societal factors in influencing suicide risk. They argue that it is impossible to treat a suicidal person by only focusing on adjusting thought and behavior patterns, but that treatment for individuals and communities must also directly acknowledge and address factors like poverty, access to education, access to medical and mental health care, social supports, stigma, and systemic oppression (Cramer & Kapusta, 2017). These factors are largely outside the control of a suicidal person, and no amount of mental health counseling is going to change the fact that these systems and barriers exist and will continue to exist (Cramer & Kapusta, 2017).

Suicide prevention and intervention developers who align with SESPM aim to address these factors collectively, fostering a more comprehensive and effective approach. Such researchers have explored the effectiveness of interventions that span diverse levels of the social-ecological system (Alchin et al., 2019; Cramer & Kapusta, 2017). Researchers have also investigated how interventions targeting individual mental health, improving social support networks, enhancing community resources, and influencing societal-level changes contribute to reducing suicide rates (Alchin et al., 2019; Cramer & Kapusta, 2017). Other researchers have assessed the integration of these strategies into comprehensive suicide prevention programs, many aimed specifically at preventing firearm related suicide deaths (Alchin et al., 2019; Cramer et al., 2022; Durkin et al., 2020).

Strengths and limitations of the theory

SESPM's strength lies in its holistic and integrative approach to suicide prevention. By acknowledging the influence of various factors across different levels of the social-ecological system, the model provides a comprehensive framework for designing and implementing suicide prevention interventions (Cramer & Kapusta, 2017). This allows for tailored strategies that consider the diverse and interconnected nature of suicide risk (Alchin et al., 2019; Cramer et al., 2022; Durkin et al., 2020). Cramer and Kapusta (2017) also noted that to truly follow the SESPM requires an interdisciplinary, bipartisan collaboration in communities. This is a strength because it acknowledges the reality that suicide is a complex concern that has not been addressed effectively with siloed approaches, and must necessarily be addressed on a larger, more comprehensive scale (Cramer & Kapusta, 2017).

Critics may argue that the broad scope of SESPM might make it challenging to implement specific and targeted interventions (Alchin et al., 2019; Durkin et al., 2020). Sometimes the nature of suicide intervention is reactive rather than proactive, and is urgent and immediate (Cramer & Kapusta, 2017). This can make it difficult for those in gatekeeper positions to plan and coordinate interdisciplinary efforts. Additionally, the model's effectiveness could vary based on cultural, geographical, or contextual differences (Cramer et al., 2022). Ongoing research is necessary to refine and adapt the model to diverse populations and settings, ensuring its applicability and efficacy across various sociocultural contexts.

Summary of theories

  Diverse theories including the biological, sociological, hopelessness, psychache, escape, biosocial, and interpersonal-psychological, as well as the social-ecological model, collectively contribute to a nuanced understanding of suicide. Each theory brings unique perspectives, enhancing comprehension of the intricate interplay between individual, social, biological, systemic, and psychological factors in suicide risk. Their strengths lie in providing specific frameworks for targeted interventions, whether by addressing biological vulnerabilities, sociocultural influences, or emotional dysregulation. However, limitations exist, such as potential oversimplification, cultural insensitivity, and challenges in predicting the multifaceted nature of suicide. Integrating these theories aids in a comprehensive understanding of suicide, guiding prevention efforts. By recognizing the intricate web of factors contributing to suicidal ideation and behaviors, professionals can tailor interventions to address specific vulnerabilities, foster social support, enhance emotional regulation, and implement broader societal changes. This multifaceted understanding informs preventive strategies that go beyond individual pathology, offering a holistic approach to suicide prevention and intervention. It is worth noting that the theories that are most used to inform gatekeeper training are Joiner's interpersonal-psychological theory (2005) and the social-ecological suicide prevention model (SESPM; Cramer & Kapusto, 2017). While the theories discussed in this section to inform each other to some extent, it is these two that have been identified as leading theories by interdisciplinary experts in suicide prevention (NIH, 2022; van Orden, 2010).

Natural helpers

Understanding theories of suicide informs conceptualization of suicidal thoughts and behaviors, which in turn informs the framework for suicide prevention and intervention strategies and measures. The next step is to understand who provides those prevention and intervention measures. Suicidality affects people across demographics, identities, experience, and life stage. Therefore, suicide prevention and intervention measures are utilized by a wide range of helping professionals including but not limited to medical professionals, first responders, military officials, social workers, school personnel, and mental health professionals. For the purpose of this research study, these diverse helping professionals who provide suicide prevention and intervention will be referred to as natural helpers (Wyman et al., 2008). Each of these professions brings unique perspectives and opportunities for intervention.

How natural helpers are trained in suicide prevention and intervention

The amount and rigor of education in preparation for certain helping profession fields varies greatly. For example, in some cities like Birmingham, Alabama the minimum education requirements to become a police officer is a high school diploma or GED and 20 weeks of training for a total of 800 hours of training (Birmingham Police Department, 2023). According to the Bureau of Labor and Statistics (BLS), to become a registered nurse (R.N.) requires a minimum of an associate degree in nursing, though typically a bachelor's degree in nursing is required for entry level positions. The BLS also shows that to become a K-12 teacher in a public school requires a four-year teaching degree in age and subject appropriate areas; becoming a psychiatrist requires a medical degree that is usually five to several years of medical after an

undergraduate degree as well as several years of residency; becoming a licensed social worker requires a one- to two-year master's degree in social work; becoming a licensed professional counselor requires a 60-credit master's degree in counseling (usually two to three years) plus approximately 2000 hours of supervised clinical practice (usually an additional two years) before becoming licensed.

While all of these people are in helping professions, they receive different training and varying levels of specificity in their training when it comes to critical issues like suicide (Hawgood et al., 2022). For many helping professionals, no suicide prevention or intervention training is legally required for their formal education but is rather usually a professional development or continuing education requirement for licensure eligibility (Burnette et al., 2015; Hawgood et al., 2022). Professional developmental obligations also vary from state to state (Hawgood et al., 2022). According to the Suicide Prevention Resources Center (SPCR, 2018), the most common way natural helpers are prepared to prevent and intervene in suicide is through specialized trainings called suicide gatekeeper trainings or simply, gatekeeper trainings.

Strengths and risks of variability across gatekeeper training

Tailored suicide prevention and intervention training yield distinct benefits for different natural helpers (Hawgood et al., 2022). Medical professionals equipped with early detection skills can intervene during routine patient interactions. First responders, with practical on-the-job training, can provide immediate support in crisis situations. Mental health professionals, through comprehensive education, bring nuanced understanding and therapeutic interventions. School personnel, trained in the unique dynamics of educational settings, can identify and support at-risk students.

While tailored training is advantageous, inconsistencies across various natural helpers pose risks (Hawgood et al., 2022). Divergent training approaches may result in uneven preparedness and response capabilities (Burnette et al., 2015; Hawgood et al., 2022). Inadequate training for specific professional groups may lead to missed opportunities for intervention, and inconsistencies may create challenges in interdisciplinary collaboration (Burnette et al., 2015; Hawgood et al., 2022). Additionally, variations in training may contribute to misunderstandings and stigmas surrounding suicide within and across professions (Burnette et al., 2015; Hawgood et al., 2022).

Summary

Suicide prevention and intervention efforts involve a diverse array of natural helpers, each receiving varying degrees of training. While tailored training offers unique benefits, inconsistencies and risks in training format necessitate a concerted effort to standardize and enhance training across professions. This ensures a cohesive and well-coordinated approach to suicide prevention and intervention, minimizing hesitations and optimizing support for those at risk. Such training is referred to as suicide gatekeeper training, hereafter referred to as gatekeeper training. The natural helpers who receive such gatekeeper training are hereafter referred to as trainees.

Gatekeeper trainings

There is a wide range of suicide prevention and intervention gatekeeper trainings available in the U.S. and globally. These trainings vary significantly in terms of training duration,

training format, and education methods. There is also great disparity when it comes to the prevalence of each training in the literature. Below is a description of each of the primary gatekeeper trainings found in the literature, including details on the key constructs and theoretical framework; training details including duration, training format, components, and target trainees; the application and effectiveness of the gatekeeper training; and finally, the strengths and limitations of each.

LivingWorks

Key constructs and theoretical framework

LivingWorks provides four distinct suicide gatekeeper trainings: LivingWorks Start; Tell, Ask, Listen, and Keep Safe (safeTALK); Applied Suicide Intervention Skills Training (ASIST); and LivingWorks Faith. These trainings are designed to equip participants with the necessary skills to identify, assess, and intervene in situations involving suicide risk (LivingWorks, 2023). These trainings emphasize the cultivation of suicide identification skills, empowering individuals to recognize both verbal and non-verbal warning signs, and increasing individual's comfort providing necessary interventions (LivingWorks, 2023).

Though LivingWorks has not explicitly identified its guiding theory of suicide, the theoretical underpinnings align with the interpersonal-psychological theory (IPTS) and the social-ecological suicide prevention model (SESPM). For instance, the Applied Suicide Intervention Skills Training (ASIST) module integrates the nuanced understanding of perceived burdensomeness and thwarted belongingness into its risk assessment strategies, aligning with the Joiner's theory (LivingWorks, 2023a; Joiner, 2005). LivingWorks also combines a focus on

individual psychological factors with an understanding of the broader social and ecological contexts influencing suicide risk, which aligns clearly with SESPM (LivingWorks, 2023a; Cramer & Kapusto, 2017). These theories collectively contribute to a comprehensive framework that informs the LivingWorks' emphasis on recognizing interconnected risk factors associated with suicidal thoughts and behaviors and establishing a human connection in order to provide appropriate intervention for suicide risk (LivingWorks, 2023).

Training details

Duration and training format. LivingWorks trainings are delivered across various modules, each tailored to specific durations and training format. LivingWorks Start, an online asynchronous program, provides participants with a flexible 60–90 minutes for self-paced engagement (LivingWorks, 2023d). safeTALK is an in-person, half-day workshop that fosters interactive learning through didactic elements and group discussions (LivingWorks, 2023c). The ASIST training extends over two full days in-person, offering a more comprehensive exploration of intervention strategies through a blend of didactic teaching, practical exercises, role-plays, and case discussions (LivingWorks, 2023a). LivingWorks Faith, designed for faith-based communities, adapts its duration to meet the unique needs of these groups (LivingWorks, 2023b).

Education methods. LivingWorks education methods are varied. LivingWorks Start, with its interactive and self-paced structure, incorporates multimedia elements to enhance the learning experience (LivingWorks, 2023d). SafeTALK integrates didactic elements, group discussions, and interactive simulations to foster a dynamic and engaging atmosphere (LivingWorks, 2023c). ASIST, known for its comprehensive approach, combines didactic teaching with practical exercises, role-plays, and case discussions to reinforce intervention

strategies (LivingWorks, 2023a). LivingWorks Faith tailors its components to faith-based settings, employing relevant role-plays, discussions, and case studies to enhance cultural competence (LivingWorks, 2023b).

Target trainees. LivingWorks suicide gatekeeper trainings are designed for a wide variety of trainees inclusive of medical professionals, first responders, military officials, social workers, school personnel, mental health professionals, and community members (LivingWorks, 2023a). Its adaptability ensures relevance across various settings, including military organizations and faith-based communities. For example, there are two versions of ASIST, one for the general public and one designed specifically for use among military personnel (LivingWorks, 2023; 2023a).

Application and effectiveness

LivingWorks has been widely utilized across diverse settings, showcasing its adaptability. Examples include integration into educational institutions including both K-12 (Condron et al., 2015; Kinchin et al., 2020; Shannonhouse et al., 2017a) and higher education (Pearce et al., 2003; Shannonhouse et al., 2017b), inclusion in medical provider training (Høifødt et al., 2007), and customization for branches of the military (LaCroix et al., 2021; Smith et al., 2017).

Researchers consistently find LivingWorks to be effective through empirical evaluations, demonstrating increased knowledge acquisition, attitude change, and enhanced confidence among participants in intervening with individuals at risk of suicide. For example, a research team found that after implementing ASIST training, K-12 school personnel ($N = 104$) demonstrated improvement in suicide intervention skills, attitude about suicide, knowledge of suicide, and

comfort, competence, and confidence in responding to persons at risk of suicide (Shannonhouse et al., 2017). Another research team provided the safeTALK training to child welfare workers (*N* = 248) and measured four items: knowledge, preparedness, self-efficacy, and reluctance (Kahsay et al., 2019). From the posttest data, researchers suggested a marked improvement in all four items (Kahsay et al., 2019). A research team evaluated 1,507 calls from suicidal individuals to the National Suicide Prevention Hotline (Gould et al., 2013). The researchers noted that "callers were significantly more likely to feel less depressed, less suicidal, less overwhelmed, and more hopeful by the end of calls handled by ASIST-trained counselors" (Gould et al., 2013, p 680).

Strengths and limitations

Strengths of LivingWorks suicide gatekeeper trainings lie in their flexibility, evidence-based approach, and interactive learning methodologies. The ability to adapt to diverse settings ensures applicability, and grounding in well-developed theories of suicide provides a robust foundation for understanding risk factors. The incorporation of experiential and interactive elements enhances participant engagement, contributing to effective skill development.

Some of the limitations to the LivingWorks trainings lie in the limited access. LivingWorks can be very expensive, and the two most comprehensive trainings, safeTALK and ASIST, are only offered in-person. It can be difficult for a natural helper to take time off work in order to attend a half day training, let alone a two-day training. While some employers may be willing and able to offer and even subsidize this training, many are not able to do so. This can leave the natural helpers in a dilemma. The natural helper may desire to improve their knowledge and self-efficacy to provide suicide prevention and intervention but find the time commitment and cost of LivingWorks trainings to be prohibitive.

Question. Persuade. Refer.

Key constructs and theoretical framework

The QPR Institute offers 16 different trainings. QPR, a mental health intervention for individuals at risk of suicide, was developed in 1995 by Paul Quinnett (Quinnett, 2013). The acronym stands for Question, Persuade, and Refer, signifying its core components aimed at recognizing and intervening in crises and guiding individuals toward appropriate care. QPR is described as a mental health version of CPR (cardiopulmonary resuscitation), both being emergency responses anyone can make for a person in dire need of immediate help. Like CPR, QPR is the first step to helping a person before getting them to a properly trained professional for further evaluation and care as needed. QPR has a focus on early detection (awareness of warning signs), also similar to CPR (Quinnett, 2013).

In his article outlining the theory of QPR, Quinnett (2013) focused on the criticality of a gatekeeper's awareness of nonverbal warning signs. He noted that because suicide is taboo in most cultural contexts, and because a suicidal person risks social rejection for explicitly expressing suicidality, they are more likely to communicate their suicidal thoughts and desires nonverbally. To describe this phenomenon, Quinnett used the term *suicide communication event* (SCE) borrowed from Owen and team (2009, 2012). An SCE is "a set of circumstances in which a person expresses suicidal feelings, thoughts, intentions or plans, either directly or indirectly, in interaction with other people in their social environment" (Owen et al., 2012, p. 420). Quinnett noted that his focus on nonverbals and empathy for the fear of social rejection align with Joiner's (2005) interpersonal-psychological theory of suicide.

Training details

Duration and training format. The QPR Institute offers 16 different trainings (QPR Institute, 2023a). The most common is the online gatekeeper training for laypersons, but they also offer training that are profession-specific such as primary care providers or pharmacists; population specific such as youth, older adults, or veterans; and some training that are geared toward a company or organizational setting. All the 16 trainings are offered in an online, self-paced format, but can also be offered in person (QPR Institute, 2023a). Participants are required to complete both pre and post-tests to assess their knowledge about suicide and competence in providing suicide intervention. The online format ensures user-friendliness, allowing participants to engage with the content easily (QPR Institute, 2023a).

Education methods.

QPR education methods are varied. The most commonly used QPR training, the online QPR gatekeeper training online, is a self-paced, online training lasting 60 minutes (QPR Institute, 2023a; Quinnett, 2013). The training consists primarily of PowerPoint-style reading, short videos, and pre-recorded mini lectures-style content from the developer, Paul Quinnett (QPR Institute, 2023a). These mini lectures are intermittently paused for short quizzes about the content in the lecture. This is designed to help the gatekeeper trainee remain engaged and ensure they are listening and learning (QPR Institute, 2023a). The training also comes with a digital booklet that provides a written review of all material covered in the training, as well as national emergency contact information. When QPR trainings are provided in person the content is largely similar but other component such as roles plays can and often are incorporated (QPR Institute, 2023a).

Target trainees. The 60-minute online gatekeeper training for laypersons has reached a widespread audience with over 5 million individuals trained worldwide (QPR Institute, 2023b).

The QPR training is appropriate for any natural helper, including adolescent laypersons. The other 15 trainings have more specific target trainees. For example, there are four profession-specific trainings: Suicide Risk Assessment and Management Training Pro (QPRT Version 2.0) for mental health professionals; QPR for Primary Care Providers; QPR Pro Gatekeeper Training, an advanced version of the 60-minute QPR gatekeeper training and noted as being ideal for those in helping professions; and QPR for Pharmacists (QPR Institute, 2023a). The QPR Institute has also produced seven gatekeeper trainings termed as advanced, most of which are population-specific: QPR for Sports Coaches is designed not just for working with athletes but also others involved such as staff, coworkers, family, and friends; Counseling Suicidal People - A Therapy of Hope, a book and text-based lessons specific for mental health counselors; Preventing Elder Suicide; QPR for First Responders - LEO, EMT and Firefighters; and QPR for School Professionals, Youth Workers, Mentors, and Advocates is designed for anyone who works for children and youth (QPR Institute, 2023a). Finally, The QPR Institute offers four significantly advanced trainings: QPR Lifespan Edition for crisis counselors and others working with high-risk populations; QPR Youth and Young Adult designed for those working in suicide intervention for youth age 10-24; QPR Adult and Older Adult for adults age 25 and older, specifically those in caregiver or crisis support roles; and QPR Veteran Edition for those working with service members, veterans, and their families (SMVF), and notably is taught by veterans (QPR Institute, 2023a).

Application and effectiveness

As noted above, providers have implemented QPR in diverse contexts, including educational institutions, workplaces, and community organizations. Its straightforward approach

makes it adaptable for integration into existing training programs or as a standalone workshop. The simplicity of the model enables quick dissemination of essential knowledge.

Research and evaluations found effectiveness of QPR in enhancing participants' ability to identify, engage, and refer individuals at risk of suicide (Cross et al., 2011; Matthieu et al., 2008). Positive outcomes include increased confidence in intervening, improved knowledge retention, and a greater willingness to take action. For example, one research team found that of 170 participants (114 K-12 school personnel and 56 parents), all of whom received the standard QPR gatekeeper training, demonstrated increases in knowledge, self-perceptions, and self-efficacy from pre- to post-training and was maintained at 3-month follow-up (Cross et al., 2011). Another team of researchers evaluated pre- and post-test data for 602 community-based counseling center staff from the U.S. Department of Veterans Affairs (VA) who received the standard QPR gatekeeper training and found significant improvement in both knowledge and self-efficacy (Matthieu et al., 2008).

Strengths and limitations

The strengths of QPR lie in its simplicity, accessibility, and real-world applicability. The model's direct approach and clear guidelines make it easy for participants to grasp and apply in various situations. Its brief duration ensures that individuals can quickly acquire essential skills without a significant time or financial burden. Additionally, QPR seeks to capitalize on existing relationships between natural helpers and those at risk of suicide (Quinnett, 2013) ensuring that suicide risk is caught and prevented in advance of attempts.

As with any gatekeeper training, QPR has limitations. Its brevity may limit the depth of understanding compared to more extensive training programs. Additionally, the reliance on a

direct approach may not suit every participant or every context, necessitating consideration of individual and cultural factors. The biggest critique of QPR has been to its final stage: Refer. Snyder (1971), in his influential work on gatekeeper training, contended that the initial concept involved natural helpers intervening with individuals at risk of suicide when their support was most crucial. He specifically noted that he was "against formal referral as a standard operating procedure," and asserted that the majority of those "who attempt suicide are victims of breakdowns in community channels for help" (Snyder, 1971, p. 40). As noted in several theories of suicide, a person at risk of suicide is likely to feel social isolation and rejection. When a gatekeeper offers an intervention and builds some rapport with the person at risk, this is an important step toward preventing suicide. However, when the gatekeeper then refers that individual to another person, this can cause a rupture, that is, a break in the already fragile and new trust built between the person at risk and the gatekeeper (Rodgers, 2010; Shannonhouse et al., 2017b; Snyder, 1971). That rupture may prevent the person at risk from trusting others in the future. It is important to note that QPR is intended to be a first response to an immanent crisis and is not designed to be an in-depth or long-term response to a person with suicidal thoughts and behaviors.

Kognito

Key constructs and theoretical framework

Originally launched as a platform for faculty to produce online lesson plans, Kognito has since transformed into a training platform for people working in education and healthcare, with modules focused on topics from suicide prevention to bullying prevention to substance use

(Albright, 2020; Bradley & Kendall, 2019; Kognito, 2023d). In the realm of suicide prevention, Kognito offers an immersive approach to equip individuals with the skills needed for effective intervention. Several key constructs characterize this training: Simulation-based learning; active listening and empathy; and applies suicide intervention skills (Kognito, 2023d).

Kognito's approach to gatekeeper training draws from key theories specifically related to suicide prevention, incorporating both explicit and implicit elements. While the program may not explicitly align with a single comprehensive theory of suicide, it incorporates principles from various suicide-related theories to inform its approach. Implicitly, Kognito integrates aspects of IPT (Joiner, 2015) by focusing on understanding the interpersonal dynamics and psychological factors contributing to suicide risk. The emphasis on communication skills and recognizing signs of distress aligns with the interpersonal aspects of IPT (Albright, 2020; Bradley & Kendall, 2019; Joiner, 2015). While not explicitly stated, Kognito aligns with the SESPM by recognizing the interconnected nature of individual, interpersonal, and societal factors influencing suicide risk (Albright, 2020; Cramer & Kapusta, 2017). The program's focus on communication skills and empathy acknowledges the broader context in which suicide prevention occurs. It is important to note that Kognito's approach is likely an amalgamation of these theories and potentially other theories, integrating practical elements relevant to suicide prevention. The program's effectiveness lies in its ability to translate theoretical principles into practical, real-world skills for gatekeepers (Albright, 2020; Bradley & Kendall, 2019).

Training details

Duration and training format. Kognito trainings are among the shortest gatekeeper trainings available, with modules lasting approximately 20-60 minutes (Albright, 2020; Bradley

& Kendall, 2019; Kognito, 2023d). Participants engage in self-paced learning through asynchronous online modules, allowing them to tailor their learning experience to their schedules. The primary training format is through online simulation modules. These modules provide participants with interactive and realistic scenarios, allowing them to practice their skills in a virtual environment (Kognito, 2023d). This approach ensures accessibility and accommodates a range of learning preferences.

Education methods. Kognito's education methods are characterized by immersive and experiential learning. Participants actively participate in simulated conversations, applying theoretical knowledge to practical scenarios (Albright, 2020; Bradley & Kendall, 2019). This hands-on approach enhances skill acquisition and retention. Central to Kognito is the use of realistic, virtual scenarios where participants engage in simulated conversations with computer-generated individuals displaying signs of distress (Kognito, 2023d). This approach is designed to provide a controlled environment for gatekeepers to practice and refine their communication and intervention skills (Albright, 2020; Kognito, 2023d). The program places a strong emphasis on cultivating active listening and empathy. Participants learn to understand and validate the feelings of individuals in crisis, fostering a supportive environment. This construct underscores the importance of building trust and connection in suicide prevention (Albright, 2020; Bradley & Kendall, 2019). Kognito integrates applied suicide intervention skills into its training. Participants are not only equipped with theoretical knowledge but are actively trained to assess risk and intervene effectively. This practical dimension ensures that gatekeepers can apply their skills in real-world scenarios (Albright, 2020; Kognito, 2023d).

Target trainees. Kognito Gatekeeper Training is designed for a diverse range of professionals including healthcare providers (Kognito, 2023a), educators (Kognito, 2023b), mental health professionals (Kognito, 2023c), and community leaders (Kognito, 2023d). The

program's adaptability allows customization for specific professional contexts. The three trainee groups of greatest focus are PK-12 staff and educators, higher education staff and faculty, and those working in the medical field. Kognito's gatekeeper trainings are designed to be supplemental for those already working with persons who are or may be at risk for suicide (Albright, 2020; Bradley & Kendall, 2019).

Application and effectiveness

Kognito has found utility in various settings, such as educational institutions, healthcare organizations, and community programs. It has been integrated into professional development initiatives, enhancing the capacity of individuals in diverse roles to identify and support those at risk (Kognito, 2023d). Research and evaluations indicated the effectiveness of Kognito Gatekeeper Training, demonstrating increased knowledge, confidence, and skill acquisition among participants (Albright, 2020; Bradley & Kendall, 2019). The simulation-based approach contributes to the program's effectiveness in translating learned concepts into real-world scenarios. For example, one research team evaluated pre- and post-test data from students in a Master of Arts in Teaching program who completed the *At-Risk for Middle School Educators* simulation training for middle school students at risk of suicide (Bradley & Kendall, 2019). The researchers found significant improvement in trainee self-efficacy and ability to identify youth at risk (Bradley & Kendall, 2019). Another research team conducted two studies, the first being a pre-and post-test evaluation of 24 trainees who took *Kognito at Risk for College Students*, and the second study is an evaluation of one academic year's worth of at0-risk referral behavior by those trained against a control (Coleman et al., 2019). The researchers found that post-test results

showed improvement in gatekeeper attitude and increase in peer referrals for those at-risk (Coleman et al., 2019).

Strengths and limitations

Kognito Gatekeeper Training demonstrates innovative strength through its simulation-based approach, immersing participants in realistic scenarios to refine their communication and intervention skills. The program's flexibility and adaptability shine, offering self-paced learning through asynchronous online modules, accommodating a diverse range of schedules and preferences. Its applicability extends to various professional settings, catering to educators, healthcare providers, mental health professionals, and community leaders. Kognito's strengths lie in its unique simulation methods, flexibility, and effectiveness in translating learned concepts into practical skills applicable in diverse roles.

One notable limitation of Kognito Gatekeeper Training lies in its brevity, particularly in shorter modules lasting 20-60 minutes. While the program excels in offering a flexible and accessible training format, the concise duration may compromise the depth of knowledge imparted. In-depth exploration and thorough understanding of suicide prevention concepts and intervention strategies may be constrained within the confines of shorter sessions. Participants might find themselves desiring more comprehensive insights and a deeper exploration of the nuanced aspects of suicide prevention. Striking a balance between brevity and thoroughness is crucial, as the succinct nature of these short trainings may leave participants wanting a more extensive and detailed educational experience. Continuous evaluation and refinement are essential to ensure that the brevity of the training does not compromise the effectiveness of the learning experience.

Connect

Key constructs and theoretical framework

Connect, formerly known as Frameworks, is a suicide gatekeeper training program in the State of New Hampshire (The Connect Program, 2023). This program places a paramount focus on community connections, urging participants to actively engage with their communities to identify and support individuals at risk of suicide. A defining characteristic of Connect is its commitment to a strengths-based perspective, encouraging trainees to identify and amplify existing strengths and resources, fostering resilience against suicide (The Connect Program, 2023).

Connect strategically and explicitly aligns with the Social-Ecological Suicide Prevention Model (SESPM; Cramer & Kapusta, 2017) as evidenced by four distinct factors. First, the program addresses individual gatekeepers by focusing on the strengths and resources of each trainee, emphasizing the importance of recognizing and building on existing strengths to foster resilience against suicide. Second, Connect places a strong emphasis on community connections, aligning with the SESPM's focus on interpersonal relationships as protective factors against suicide (The Connect Program, 2023; Cramer & Kapusta, 2017). By fostering community engagement, the program contributes to a supportive social environment. Third, Connect's commitment to community engagement directly aligns with the SESPM's emphasis on leveraging community resources (The Connect Program, 2023; Cramer & Kapusta, 2017). The program empowers trainees to identify and utilize community resources to support individuals at risk of suicide. Finally, by acknowledging the broader societal influences on suicide, Connect incorporates a cultural competence component. This aligns with the SESPM by recognizing the

impact of cultural factors on suicidal thoughts and behaviors and addressing these influences in suicide prevention efforts (The Connect Program, 2023; Cramer & Kapusta, 2017).

Training details

Duration and training format. Connect's comprehensive design includes a 6-hour training duration, delivered in person over multiple sessions (The Connect Program, 2023). This in-person training format fosters a face-to-face learning environment, crucial for building a sense of community and trust among trainees. In response to growing demand for remote and hybrid learning options, Connect has adapted their model to have some delivery available remotely, though this is not asynchronous and still requires live participation and engagement from all trainees (The Connect Program, 2023).

Education methods. The education methods are largely community based, placing a high focus on understanding social, systemic, and other ecological factors facing both trainees as well as those at risk (Chung-Do et al., 2016; The Connect Program, 2023). This community focus emphasizes the need for collective and social supports to prevent and intervene in suicidal events. Connect training encompasses didactic elements, interactive discussions, case studies, and role-playing exercises, offering a well-rounded learning experience that integrates theoretical knowledge with practical skills (The Connect Program, 2023).

Target trainees. Connect caters to a broad audience, including mental health professionals, educators, community leaders, and individuals invested in suicide prevention (The Connect Program, 2023). What sets Connect apart from other trainings is its adaptability for special populations (Chung-Do et al., 2016). The program can be tailored to address the unique needs of specific groups, demonstrating a commitment to inclusivity (Chung-Do et al., 2016).

Whether working with youth, veterans, American Indian/Alaska Natives, or other special populations, Connect provides a framework that can be adjusted to meet the diverse challenges these groups may face in relation to suicide prevention (Chung-Do et al., 2016).

Application and effectiveness

Connect's effective utilization extends across various contexts, such as integration into school curricula, community-based workshops, workplace training, and collaboration with first responders (Baber & Bean, 2009; Chung-Do et al., 2016; The Connect Program, 2023). This versatility underscores the program's adaptability and relevance in different settings, making it a valuable resource for suicide prevention efforts.

Connect consistently demonstrates effectiveness in enhancing participants' knowledge, attitudes, and skills related to suicide prevention. Evaluation data indicates increased confidence among trainees in recognizing and responding to suicide risk, contributing to positive outcomes in suicide prevention efforts. For example, one research team evaluated pre- and post-test data from 157 adults from various fields including education and healthcare, as well as 131 ninth-grade students, all of whom completed the Connect training (Baber & Bean, 2009). At post-test, the research team found significant increases in knowledge about youth suicide and belief in the usefulness of mental health care for all participants, and that for adult participants, preparedness to help at-risk youth increased (Baber & Bean, 2009). In another study the same research team compared pre- and post-test data from 648 adults and 204 high school students who completed the Connect training (Bean & Baber, 2011). The researchers found significant improvement in knowledge and attitudes about suicide, increased belief in the usefulness of mental health care, and reduction of stigma associated with help-seeking behaviors (Bean & Baber, 2011).

Strengths and limitations

Connect's unique strengths encompass its community-centered approach, flexible delivery, cultural inclusivity, and long-term impact. The emphasis on community engagement fosters a collective responsibility for suicide prevention, while the combination of in-person education methods ensures adaptability and accommodates diverse learning preferences.

Despite its strengths, Connect faces limitations related to resource intensity, in-person dependence, skill retention, and accessibility challenges for certain professions. The 6-hour duration may be more accessible than multi-day trainings, however, considerations for ongoing support and potential challenges in remote areas remain essential.

Gatekeeper training summary

In a critical review of suicide gatekeeper trainings such as LivingWorks, QPR, Kognito, and Connect, it becomes evident that these programs embody diverse key constructs, theoretical frameworks, and target trainees, reflecting the complexity of suicide prevention training. The effectiveness of these programs varies significantly, introducing a crucial need for comparisons to inform decision-making. Understanding the relative effectiveness of these trainings is essential because suicide intervention is of paramount importance. Equipping individuals with the skills to be suicide gatekeepers is a critical step in preventing suicide, given the profound impact of timely and appropriate interventions. Identifying the most effective gatekeeper trainings is crucial for optimizing resource allocation and ensuring that the training investments made by individuals, organizations, and communities yield the greatest impact. Therefore, this study undertakes a comprehensive evaluation, considering variables such as training duration, training format, and

education methods. By discerning the strengths and limitations of each training program, we can enhance suicide prevention efforts, ultimately contributing to the broader goal of saving lives and fostering a culture of mental health and well-being.

Evaluating gatekeeper training effectiveness

Effectiveness of suicide interventions might be measured by reductions in suicidal thoughts, feelings, and behaviors, or perhaps measures using suicide inventor scales or mood scales, or even still on a macro level might be measured by numbers of attempts and deaths by suicide over time in a particular group or community. But to evaluate how effective a suicide gatekeeper *training* is, it is important to evaluate the trainee outcomes. Researchers have concentrated on two primary trainee outcomes: trainee knowledge and trainee self-efficacy (Wyman et al., 2008). These two assessments play a crucial role in determining the impact of training interventions on the ability of gatekeepers to prevent suicide. Some suicide gatekeeper trainings also assess for trainee attitudes, but this is less commonly evaluated (Holmes et al., 2021). Therefore, the researcher for this study will focus on the two primary outcomes of trainee knowledge and trainee self-efficacy.

Evaluating trainee knowledge

Knowledge of risk factors

Trainees' knowledge is often evaluated in terms of their understanding of various risk factors associated with suicidal ideation and behavior (Lamis et al., 2017; Quinnett, 1999; Wyman et al., 2008). This includes factors that impact at-risk persons on individual, relational, community, and societal levels (CDC, 2023b). Individual risk factors can include previous suicide attempts, history of depression or other mental illness, chronic illness, involvement in the carceral system, financial strain or unemployment, food and housing insecurity, substance use, and victimization of a violent crime (CDC, 2023b). Risk factors on the relational level can include losing a friend or family member to suicide, high conflict or violence in a relationship; social isolation, and bullying (CDC, 2023b). Risk factors on the community level can include lack of access to health care, suicide contagion in the community, acculturation stress, community violence, historical or generational trauma, discrimination and micro-aggressions (CDC, 2023b). Risk factors on the societal level can include mental health stigma, access to lethal means such as firearms, and dangerous portrayals of suicide in media (CDC, 2023b). Proficiency in identifying these risk factors is essential as it enables gatekeepers to recognize individuals who may be at heightened risk, facilitating timely intervention (Lamis et al., 2017; Quinnett, 1999; Wyman et al., 2008).

Knowledge of protective factors

Researchers also assess trainees' comprehension of protective factors that can mitigate suicide risk. This involves understanding the positive elements and support systems that contribute to an individual's resilience against suicidal thoughts and behaviors on individual, relational, community, and societal levels. On the individual level, protective factors can include coping skills; reasons for living such as a friend, family member, or pet; and strong sense of cultural identity (CDC, 2023b). On the relational level, protective factors can include supportive family and friends, and a sense of connection and belonging (CDC, 2023b). On the community level, protective factors can include connection to a group such as a school or team and availability of good physical and behavioral health care (CDC, 2023b). On the societal level, protective factors can include reduced access to lethal means and cultural, religious, or moral objection to suicide (CDC, 2023b). A robust understanding of protective factors equips gatekeepers to strengthen these elements in at-risk individuals, fostering a protective environment. (Quinnett, 1999; Wyman et al., 2008).

Knowledge of warning signs

Trainees are also evaluated on their knowledge of warning signs indicative of imminent suicide risk. Warning signs are generally organized into three categories: talk, behavior, and mood. In the talk category, warning signs can include talking about killing themselves, talking about feeling hopeless, talking about being a burden or having no reason to live, and talking about feeling trapped or as if they are in unbearable emotional or physical pain (AFSP, 2023b). In the behavior category, warning signs can include increase in substance use, searching for means to

end their lives, isolation from loved ones, significant change in sleep habits, saying goodbye or giving away prized personal items, and aggression (AFSP, 2023b). In the mood category, warning signs can include depression, anxiety, apathy, irritability, shame or humiliation, anger or agitation, and even sudden relief or improvement (AFSP, 2023b). Recognizing behavioral and verbal cues allows gatekeepers to identify individuals in distress, enabling them to intervene and connect those at risk with appropriate resources (Quinnett, 1999; Wyman et al., 2008).

Knowledge of intervention strategy and application

Trainees are also evaluated on their knowledge of appropriate responses to suicidal individuals (Wyman et al., 2008). This includes an understanding of appropriate immediate responses as well as appropriate follow-up and subsequent behaviors as outlined by the specific training. For example, in QPR, the trainee is taught to ask directly about a person's suicidal behaviors and risk, persuade that person to stay alive and accept help, and then refer that person to the appropriate specialist for further care (QPR Institute, 2023b; Quinnett, 2013).

Common trainee knowledge outcome measures

It is important to know what types of knowledge is being measured and evaluated in various gatekeeper trainings. The next step is to understand how those measures and evaluations are being conducted in terms of consistency and accurate comparisons. This section outlines the most common trainee knowledge assessment tool, the Suicide Intervention Response Inventory- 2 (SIRI-2) and less common assessments for trainee knowledge including quizzes and other written tests.

SIRI-2 as an evaluation tool

The Suicide Intervention Response Inventory-2 (SIRI-2; Neimeyer & Bonnelle, 1997) is a widely used instrument to evaluate the suicide gatekeeper trainee knowledge. The SIRI-2 is a set of 25 questions that assesses "the extent to which respondents can discriminate between more and less effective responses in suicide counseling situations" (Neimeyer & Bonnelle, 1997, p. 61). Through rigorous assessment and revisions, Neimeyer and Bonnelle (1997) updated the original SIRI to the SIRI-2 and established high internal consistency for both strong construct validity ($\alpha = .90$) and discriminant validity ($\alpha = .93$), as well as strong test-retest reliability ($r = .92$), even with a relatively small sample size ($N = 62$). Other researchers have found the SIRI-2 to have strong validity and reliability. Scheerder and colleagues (2010) used a much larger sample size ($N = 980$) and reported a strong internal consistency ($\alpha = .75$), and Shannonhouse and colleagues (2017b) reported satisfactory internal consistency at pretest ($\alpha = .82$) and posttest ($\alpha = .80$), along with a strong test-retest reliability estimate for the control group ($r = .96$).

There are several unique strengths of the SIRI-2 include its comprehensive coverage of suicide intervention domains, its established reliability and validity, its versatility in capturing pre- and post-training data, and its incorporation of both declarative and procedural knowledge (Neimeyer & Bonnelle, 1997). However, the SIRI-2 has limitations, including the potential for response bias, the reliance on self-reporting, the lack of a standardized scoring system, and the potential for social desirability bias. While the SIRI-2 serves as the current industry standard, it is acknowledged to have flaws, emphasizing the need for a critical approach to its results.

Other common trainee knowledge outcome measures

Apart from the SIRI-2, other knowledge assessments, such as quizzes or written tests, are used to evaluate trainee understanding of key concepts. These assessments offer an objective measure of knowledge acquisition but may not capture the application of knowledge in practical situations (Cross et al., 2011; Hashimoto et al., 2016). Many of these are designed for a specific research project or specific implementation of a gatekeeper training, and are therefore not standardized (Matthieu et al., 2008; Woods et al., 2023).

Limitations of evaluating trainee knowledge

Merely measuring knowledge acquisition does not guarantee the ability to apply that knowledge in real-life situations. Trainees may recognize risk factors and warning signs intellectually but struggle to effectively intervene in crisis situations (Labouliere et al., 2015). Knowledge assessments may not capture the nuanced understanding required to navigate diverse cultural contexts (Labouliere et al., 2015; McNulty, 1965). Gatekeepers need to apply their knowledge in culturally sensitive ways, an aspect often overlooked in traditional knowledge assessments (Nasir et al., 2016). Suicide risk is dynamic, influenced by various factors. A snapshot assessment of knowledge may not capture the evolving nature of suicide risk and the need for ongoing education and adaptability (Labouliere et al., 2015; McNulty, 1965). The assessment of knowledge may not consider how well trainees integrate suicide prevention concepts with their existing skill sets, potentially limiting the practical application of acquired knowledge (Labouliere et al., 2015; Nasir et al., 2016).

Evaluating trainee self-efficacy

Self-efficacy is a trainee's comfort in providing interventions to those at risk of suicide. Researchers have found that improving trainee knowledge alone does not increase the likelihood that a gatekeeper will provide interventions (Hawgood et al., 2022; Labouliere et al., 2015). One team found in their systematic review of gatekeeper trainings that self-efficacy is the most enduring outcome, with follow-up tests showing above-baseline levels of self-efficacy (Holmes et al., 2021). Improving trainee self-efficacy in providing suicide interventions is crucial for the effectiveness of gatekeeper trainings. There is no standardized measure for suicide gatekeeper self-efficacy, though some research teams have begun work to establish such a standard (Calear et al., 2023; Takahashi et al., 2021). Until a standard measure is established, there are three methods employed by researchers to measure trainee self-efficacy: self-report surveys, simulated role-plays, and behavioral observations.

Common trainee self-efficacy outcome measures

Measuring trainee knowledge is critical but research has shown that suicide gatekeepers who have high knowledge scores but low self-efficacy scores are very unlikely to engage in suicide gatekeeping activities with at-risk persons (Hawgood et al., 2022; Labouliere et al., 2015). Therefore, it is critical to measure trainee self-efficacy as well as trainee knowledge. It should be noted that there are currently no industry standards for measuring gatekeeper trainee self-efficacy (Takahashi et al., 2021), and that most measures for this outcome are done ad-hoc, adding to the issue of inconsistency across studies. This section details some of the most common evaluation

tools for gatekeeper trainee self-efficacy, including self-report surveys, simulated role-plays, and behavioral observations.

Self-report surveys

Trainees may complete self-report surveys that gauge their perceived confidence and competence in intervening in suicidal situations. These surveys typically include Likert scale questions, allowing trainees to rate their confidence levels in various aspects of suicide prevention (Matthieu et al., 2008; Woods et al., 2023). As with trainee knowledge assessments, there are a variety of studies that have included ad-hoc self-report surveys (Matthieu et al., 2008; Woods et al., 2023). These surveys are often created for a specific training and a specific research project and therefore do not demonstrate psychometric properties. The absence of reported reliability and validity of the self-efficacy surveys is a limitation in the evaluation process, particularly for consistency across studies.

Simulated role-plays

Researchers utilize simulated scenarios where trainees actively engage in role-playing exercises to measure their self-efficacy. This can be done via a computer interface (Kognito, 2023d) or live during training (LivingWorks, n.d.-a). This simulation method can provide a practical opportunity for assessment of how well trainees apply their knowledge in simulated yet realistic situations. These simulations themselves may also enhance trainee self-efficacy to provide suicide interventions in real-world scenarios (Cross et al., 2011). There are several strengths of simulated role-plays as a tool to measure gatekeeper self-efficacy. First, the

observational nature affords gatekeeper trainers the opportunity to give instantaneous feedback,

offer suggestions when the trainee seems at a loss, and ask questions to assess the trainee's level

of confidence. Trainers can use this tool to assess trainee's demeanor, body language, tone,

inflection, eye contact, pace, and other critical data that can indicate if a trainee feels confidence,

anxious, self-conscious, etc. Since most of the self-efficacy assessments are largely observational

and subjective, there is little uniformity to any checklist or other formal assessment tool. That

subjectivity is one of the primary limitation of simulated role-plays as a tool to measure

gatekeeper self-efficacy. Because the determination of the trainee's level of self-efficacy is

subjective for both trainee and trainer, the trainer must take great care to be attentive and also

practice cultural humility when assessing competence and confidence levels of trainees.

Behavioral observations

Some studies employ behavioral observation to assess trainee self-efficacy (Cross et al.,

2011). This involves observing trainees during actual intervention situations with a real person at

risk as opposed to a simple role-play with a co-trainee. These behavioral observations are

designed to allow observers to evaluate the trainee's ability to effectively apply learned skills and

techniques. This may be a thorough evaluation technique and a timely strategy for improving the

gatekeepers' skills and intervention application (Cross et al., 2011). However, it is cumbersome

in terms of time and personnel resources (Cross et al., 2011). Such an evaluation process requires

the time for observations as well as debriefing with the trainee, as well as the ability to either

record interventions or watch them live, both options require more equipment and physical space

than a simple self-report survey.

Limitations of evaluating trainee self-efficacy

Self-efficacy measures may not account for the potential overestimation of one's abilities (Cecchin et al., 2022). Trainees might express confidence but struggle when faced with the complexity and emotional intensity of real-world suicide intervention scenarios (Cecchin et al., 2022). Self-efficacy assessments may not reflect the trainees' ability to transfer their confidence and skills from a controlled training environment to dynamic, real-life situations where unexpected challenges may arise (Cecchin et al., 2022; Nasir et al., 2016). Evaluating self-efficacy alone may not capture the trainee's confidence in addressing suicide risk within diverse cultural contexts. A high level of self-efficacy may not necessarily correlate with cultural competence in suicide prevention (Nasir et al., 2016). Self-efficacy assessments may not gauge the sustainability of confidence over time. A trainee might feel confident immediately post-training but experience a decline in self-efficacy without ongoing support and reinforcement.

Additional factors influencing gatekeeper training effectiveness

Using the two primary outcomes (trainee knowledge and trainee self-efficacy) may be insufficient to truly determine the effectiveness of a suicide gatekeeper training (Holmes et al., 2021; Lipson et al., 2014). Therefore, it is suggested that researchers investigate other factors that may contribute to the effectiveness of gatekeeper training and seek to determine which factors produce the most desirable results for trainee outcomes (Platt et al., 2019). Those factors include training duration, training format, and education methods. These factors may help researchers not only understand variance in effectiveness of trainings, but also what aspects of gatekeeper trainings are the most effective. Such knowledge could inform fields of natural helpers

about how to improve existing gatekeeper trainings and what aspects to consider when developing new gatekeeper trainings.

Training duration

The first factor that may influence gatekeeper training outcomes, and which varies significantly among gatekeeper trainings, is the duration of the training. For example, some of the Kognito trainings have a duration of approximately 20 minutes (Kognito, 2023d), while LivingWorks ASIST is a full 16 hours of training spread over two consecutive days (LivingWorks, n.d.-d). Longer training durations may allow for a more in-depth exploration of suicide prevention skills, fostering a deeper level of understanding and skill development among trainees. Extended training periods may also facilitate better knowledge retention, ensuring that trainees can recall and apply critical information over an extended period. A longer training duration can also allow for more extensive integration of practical scenarios, potentially enhancing trainees' ability to apply theoretical knowledge in simulated real-world situations (Cross et al., 2010). Extended durations may provide opportunities for trainees to reflect on the material, fostering a deeper understanding and connection to the subject matter (Hawgood et al., 2022). However, lengthy training sessions may result in participant fatigue, potentially impacting information retention and engagement levels. Longer training durations may also pose challenges in terms of resource allocation, potentially limiting accessibility for certain groups or organizations with time constraints. While a longer training duration may allow for more content and practice, longer training durations may also prove to be a barrier for helping professionals, who generally have limited time for additional trainings and professional development.

Training format

Another factor which may influence gatekeeper training effectiveness is the format of the training. The training format could be in-person, online, or some combination of both. In-person training may foster direct interaction and engagement, which can enhance the learning experience and promote better retention of knowledge. Online asynchronous training provides flexibility but may lack the immediacy and dynamic interaction crucial for certain experiential learning components (Ghoncheh et al., 2016; Mishkind et al., 2023). Hybrid approaches may integrate online components with in-person simulations, combining the benefits of both for a more realistic and impactful training experience (Wislocki et al., 2023). Online asynchronous methods may present challenges for individuals with limited access to technology, potentially creating disparities in training accessibility but may increase accessibility for others who do not have transportation or means of attending in-person trainings (McKay et al., 2022). In-person training allows for real-time adaptation to the cultural context, ensuring that discussions and scenarios are culturally sensitive and relevant (Nasir et al., 2016). In-person training may present logistical challenges, such as scheduling conflicts or travel requirements, limiting participation for certain individuals or groups (Wislocki et al., 2023). Gatekeeper trainings provided in person may offer a richer learning experience, while those offered online offer great flexibility and accessibility. Having a more clear comparison of how the training format impacts training outcomes will be important for researchers and gatekeeper training developers going forward.

Education methods

The final factor that may influence gatekeeper training effectiveness is the education methods used in the training. These educational methods can include simulations, role plays, lectures, readings, group discussions, demonstrations, and videos. Most of the gatekeeper trainings will have multiple educational methods but the current list is not exhaustive. Experiential education methods, including simulations and role-playing, encourage active participation, potentially enhancing the application of knowledge in practical situations (Cross et al, 2010). Varied education methods may improve a training's ability cater to diverse learning preferences, ensuring that participants with different learning styles can engage effectively with the material (Wislocki et al., 2023). Computer simulations and live role plays may provide a controlled environment for realistic scenarios, allowing trainees to apply their knowledge in a simulated but authentic context (Cross et al, 2011). Certain education methods, such as computer simulations, may be resource-intensive, potentially limiting their widespread implementation. Didactic or lecture-based approaches may provide a comprehensive overview of theoretical concepts but may lack the practical application necessary for skill development (Ghoncheh et al., 2016). Experiential and simulation-based components can be adapted to different cultural contexts, ensuring that training remains relevant and culturally sensitive (Nasir et al., 2016). While the duration and format of a training will dictate some of the education methods available for certain gatekeeper trainings, it is important to evaluate how the education methods themselves may impact gatekeeper training outcomes.

Summary of evaluating gatekeeper training effectiveness

Measuring the effectiveness of suicide gatekeeper training requires a holistic approach that goes beyond measuring the outcomes of trainee knowledge and trainee self-efficacy. Training duration, training format, and education methods may collectively or individually contribute to the nuanced outcomes of suicide prevention efforts. Understanding the multifaceted impact of these factors is crucial for designing accessible, effective, contextually relevant, and culturally responsive gatekeeper training programs.

Discussion and future research

Suicide stands as a critical and pressing issue, necessitating a comprehensive understanding through various theoretical lenses. Several theories, including the biological theory, sociological theory, hopelessness theory, psychache theory, escape theory, emotion dysregulation theory, interpersonal-psychological theory, and the social-ecological suicide prevention model (SESPM), guide researchers in developing suicide gatekeeper trainings. Gatekeeper trainings such as LivingWorks, The QPR Institute, Kognito, and Connect exemplify these efforts to train professional and natural helpers in responding to suicidal ideation.

In evaluating the effectiveness of gatekeeper trainings, researchers traditionally focus on trainee knowledge and self-efficacy. However, recognizing the insufficiencies in solely relying on these factors, this discussion emphasizes the importance of considering additional variables of the training itself: training duration, training format, components, and the profession/association of trainees.

While evaluating trainee outcomes is crucial for understanding the impact of gatekeeper training, it is imperative to acknowledge that even if trainees become highly knowledgeable and proficient in suicide intervention, it does not guarantee a direct reduction in suicides. To bridge this gap, future research should explore trends in attempted suicides, deaths by suicide, and other relevant data on both micro and macro scales. Cross-referencing this information with data on the implementation of gatekeeper trainings in critical areas and among at-risk populations could provide nuanced insights into the training's real-world impact.

This and other studies open several avenues for future research. One such avenue is the need for a standardized method of measuring the effectiveness of suicide gatekeeper trainings to replace the industry standard, SIRI-2. This measure may be the current standard but contains many known flaws. The SIRI-2 also does not account for nuance in training duration, training format, and education methods, all of which may be critical variables in determining best fit and most effective gatekeeper training. Creating a standardized measure that can appropriately account for such nuance will be important for gatekeeper training developers going forward to produce trainings that maximize effectiveness.

Other avenues for future research include investigating how suicide gatekeeper trainings are embedded within professional curricula across different states and professions. For example, some universities have incorporated the LivingWorks gatekeeper training into their requirements for graduate students pursuing a master's in counseling. Other professions like teachers and other K-12 staff have various requirements to receive periodic professional development in the form of suicide intervention and prevention training. For example, one school district in Pennsylvania requires that all school staff and personnel receive at least one hour of suicide gatekeeper training every five years. Investigating this further could shed light on variations and help identify best practices for seamless integration.

Research exploring the point of saturation in trainee knowledge and self-efficacy could also determine whether there is an optimal level beyond which further training yields diminishing returns. Understanding this threshold is essential for resource optimization. Exploring the ideal timing between gatekeeper trainings to maintain trainee readiness and effectiveness is crucial. Researchers could also investigate the frequency required for refresher trainings to ensure sustained competence in suicide prevention and intervention. Another avenue for future research could involve evaluating the impact of gatekeeper trainings at both micro and macro levels. This line of inquiry could involve analyzing data on individual interventions and suicide rates across broader populations. This comprehensive approach could provide a more holistic understanding of the training's effectiveness. Future research should explore strategies for effectively incorporating gatekeeper training data into broader suicide prevention initiatives, ensuring that these efforts are synergistic and collectively contribute to reducing suicide rates. Investigating the customization of gatekeeper training for specific populations, considering cultural nuances and unique risk factors, could enhance the training's effectiveness and relevance. Conducting longitudinal studies to track the long-term impact of gatekeeper training on trainees' intervention behaviors and the outcomes of individuals at risk can provide valuable insights into the sustainability of training effects.

As research progresses, understanding the multifaceted nature of suicide prevention and the role of gatekeeper training within this broader context is paramount. This discussion and proposed future research directions contribute to a more nuanced and comprehensive approach to evaluating and improving suicide gatekeeper trainings, ultimately working towards the overarching goal of preventing suicide.

Chapter 3

Methodology

There is a dearth of existing literature on suicide gatekeeper training outcomes, particularly concerning trainee knowledge and trainee self-efficacy. A meta-analytic approach would allow for comparison of gatekeeper training outcomes. However, other researchers have conducted or attempted to conduct meta-analyses regarding suicide gatekeeper training outcomes on trainees, with limited success (Kuntz 2019; Mo et al., 2018; Yonemoto et al., 2019). The researchers cited several limitations for a meta-analysis including inconsistencies of research designs in the existing literature, as well as an insufficient number of randomized control trials for adequate sampling. An alternative methodological approach for examining gatekeeper trainings is required to advance this line of inquiry. Content analysis is a qualitative research methodology used to systematically analyze textual, visual, or audio data to identify patterns, themes, and relationships within the content (Erlingsson & Brysiewicz, 2017; Slapin & Proksch, 2014). Previous researchers in counseling have utilized content analysis to identify trends in professional literature to guide next steps in research and clinical practice (Clark et al., 2018; McKibben et al., 2017; Prosek & Burgin, 2020). The current study will employ content analysis to systematically identify patterns of gatekeeper trainings with a focus on trainee knowledge, trainee self-efficacy, and training components. The findings may inform the refinement and improvement of gatekeeper training programs by identifying areas of strength and areas needing improvement.

Positionality and research team

In qualitative research, the researcher is considered a tool or instrument of the study (Hays & Singh, 2023). Therefore, before conducting any qualitative research, it is important for the researcher to identify their positionality. This includes social, cultural, racial, gender, and other positions and identities that can impact the bias, prejudices, and assumptions held by the researcher, which can in turn influence the study design, as well as interpretation of findings. I am a 35-year-old white, cis-gendered, heterosexual doctoral student in counselor education at a land-grant predominantly white institution (PWI). As the primary researcher, I acknowledge the potential for bias stemming from my personal experiences and beliefs related to suicide prevention and gatekeeper training. Throughout this study, I took steps to mitigate the influence of bias on the research process and findings. I recognize that my personal experiences, including providing support to individuals at risk of suicide in various capacities and undergoing multiple suicide gatekeeper trainings, may shape my perspectives and attitudes towards the effectiveness of these trainings. Experts in qualitative inquiry noted that connection to the research topic may not be a threat to validity and can be a strength to the research process (Hays & Singh, 2023). They suggested the importance of researcher reflexivity as an intentional means for qualitative researchers to reflect on their experiences during the inquiry. I maintained a reflexive stance throughout the research process, continuously reflecting on how my personal background and beliefs may influence the interpretation of data and the conclusions drawn from the analysis. I kept transparent documentation of reflexive notes, demonstrating awareness of how the inquiry impacted me as a researcher and how I as the researcher could influence the data analysis process.

In this study, the primary researcher utilized a coding partner for data analysis. The primary researcher identified a first-year doctoral student in counselor education who has

completed several research courses in their academic career. As a research team, we collaborated closely throughout the data analysis process, with a focus on establishing inter-coder reliability and ensuring the consistency of coding decisions. The primary researcher provided comprehensive training and orientation to the coding partner regarding the objectives of the study, the research questions, and the content anal

ysis methodology. The coding partner received guidance on the development and application of the coding scheme, including the identification of key concepts and themes, the operationalization of codes, and the establishment of coding criteria. The research team worked under the supervision of a faculty member in counselor education, who has expertise in qualitative research methodology and previous experience conducting content analyses. The first-year doctoral student coder identifies as a 33-year-old Latina, cis-gendered, heterosexual, Spanish/English bilingual and immigrant doctoral student in counselor education at a land-grant predominantly white institution (PWI). To mitigate the risk of power differentials between the white third-year doctoral student as the primary researcher and the Latina first-year doctoral student coder, the coding team met regularly to engage in collaborative dialog and identified a faculty member to offer an unbiased perspective on coding procedures and interpretations if necessary. The faculty member supervisor identifies as a white, cis-gendered, straight woman, with a professional background in clinical mental health counseling. Her research interests include military populations and program evaluation, which have overlap to this study in which suicide prevention and intervention gatekeep trainings are reviewed.

Research design

Content analysis

This study has been identified as a qualitative study. The researcher employed a content analysis method of qualitative research. Content analysis is a research methodology used to systematically analyze textual, visual, or audio data to identify patterns, themes, and relationships within the content (Erlingsson & Brysiewicz, 2017; Kondracki et al., 2002; Slapin & Proksch, 2014). It is widely employed in various fields, including communication studies, sociology, psychology, marketing, and political science (Krippendorff, 2019; Neuendorf, 2017). Content analysis involves coding and categorizing data to extract meaningful insights and draw conclusions about the content being analyzed. Content analysis possesses numerous advantages that make it appropriate for qualitative research. Krippendorff (2003), in his discussion of the method, highlighted its capacity to surpass conventional conceptions of symbols, contents, and intentions (p. xvii). The method constitutes an observational approach that is non-intrusive and allows the researcher to identify patterns (Erlingsson & Brysiewicz, 2017; Kondrachi et al., 2002). This study will employ content analysis systematically to identify patterns in various gatekeeper trainings across trainee knowledge, trainee self-efficacy, and training components. Krippendorff (2003) noted that one of the primary benefits of using content analysis is that it enables researchers to infer answers to research questions (p. 30).

In the counseling profession, researchers have utilized content analysis to empirically explore trends in research. For example, researchers inferred publication patterns in counseling scholarship regarding social class (Clark et al., 2018) and military-related counseling research (Prosek & Burgin, 2020). Some counseling researchers have used an inductive approach within

content analysis, allowing themes to emerge from the textual data. For example, McKibben et al. (2017) examined counseling literature on leadership to understand how professionals in the field demonstrate and describe leadership style and dynamic. Other researchers have approached their content analysis with a deductive approach. For example, Prosek and Burgin (2020) utilized an a priori codebook structured from an existing publication of counseling military populations to guide their data analysis process. For the current study, previous research exists on examining patterns of gatekeeper training that can be drawn upon to develop an a priori codebook.

Deductive approach

To conduct high quality qualitative research such as a content analysis, it is best for researchers to employ a strategic paradigm (Armat et al., 2018; Hyde, 2000). For this study, the researcher used a deductive approach. A deductive approach to qualitative content analysis offered a systematic and structured method for analyzing data (Armat et al., 2018; Azungah, 2018; Hyde, 2000). By using a predefined or a priori codebook, researchers can efficiently identify and interpret themes or patterns in the data, thereby enhancing the reliability and validity of their findings (Azungah, 2018; Hyde, 2000). The codebook for this study was adapted from a meta-analysis on suicide gatekeeper training outcomes on college campuses (Kuntz, 2019).

One strength of using a deductive approach is that it is theory-driven, which can anchor research within established theoretical frameworks and facilitating clear research objectives (Armat et al., 2018; Hyde, 2000). This framework can also enhance the rigor and reliability of the findings (Armat et al., 2018). Additionally, starting with a predefined set of codes can help ensure consistency in data interpretation and facilitate comparisons across different studies or researchers (Azungah, 2018; Hyde, 2000). One of the noted limitations and gaps in existing

suicide gatekeeper literature is that studies are conducted inconsistently, and researchers have noted a need for some uniformity and consistency (Armat et al., 2018; Azungah, 2018; Hyde, 2000). Adapting an a priori codebook rather than developing a new codebook may help establish some of that needed consistency.

There are also limitations to consider when employing a deductive paradigm. For example, the deductive approach may overlook emergent themes or nuances in the data that were not accounted for in the initial codebook (Armat et al., 2018; Azungah, 2018; Hyde, 2000). It can also be restrictive if the predetermined codes do not fully capture the complexity of the data or if they are based on incomplete or outdated theoretical frameworks (Armat et al., 2018; Hyde, 2000). Deductive approaches may overlook novel or innovative insights that emerge from the data, as researchers focus primarily on confirming existing theories rather than exploring new avenues of inquiry (Armat et al., 2018; Azungah, 2018). It is essential to remain open to unexpected insights and to critically evaluate the relevance and applicability of the chosen codes to ensure a comprehensive analysis.

Research questions

Content analysis allows researchers to conclude valid inferences by employing a systematic, replicable approach to data analysis that can answer meaningful research questions (Krippendorff, 2019). A content analysis of suicide gatekeeper trainings may help stakeholders understand the patterns of available trainings, which may inform appropriate selection of trainings, or guide future research on training outcomes and components. The current study will utilize a deductive approach to answer the following research questions:

- Who are the natural helpers receiving gatekeeper training?

- To what extent do gatekeeper trainings improve trainee knowledge?

- To what extent do gatekeeper trainings improve trainee self-efficacy?

- What are the various components of gatekeeper trainings?

Procedures

Before starting the content analysis, the researcher consulted with an Institutional Review Board (IRB) representative. Given content analysis empirically explores textual data, it is not human subjects research, and the IRB representative confirmed IRB approval was not required. The current content analysis was guided by Krippendorff's (2019) six steps: unitizing, sampling, recording, reducing, inferring, and narrating. Previous researchers in counseling have delineated the first three steps as procedural and the second three steps as analysis (McKibben et al., 2017; Prosek & Burgin, 2020). The current study can strengthen replicable, valid conclusions by offering detailed information regarding the procedures to the content analysis.

Unitizing

Unitizing is the process by which the researcher specifies how the content was defined for the study (Krippendorff, 2019). The units of analysis for this study were journal articles of empirical studies on suicide gatekeeper trainings. Neuendorf (2002) recommended a minimum of 387 units allows researchers to establish generalizability with a 95% confidence interval. In the current study, this would mean 387 published articles of empirical studies regarding gatekeeper training. Previous content analyses in counseling have noted their limitations to achieve 387 units

(McKibben et al., 2017; Prosek & Burgin, 2020). Experts in content analysis suggested that number of units may vary and may still be sufficient for answering research questions (Krippendorff, 2004; Patton, 2002).

Sampling

During sampling, the researcher created the plan for identifying the units for the content analysis (Krippendorff, 2019). For this study, the sample derived from interdisciplinary journals. The sample included published empirical studies on suicide gatekeeper trainings as well as dissertations and theses, but did not include conceptual work. Expanding the sample to include interdisciplinary journals, rather than only counseling profession journals, ensured a comprehensive and diverse sample of studies for analysis (Krippendorff, 2019). Given the scope of the sample required, identifying the search criteria to ensure comprehensive coverage of relevant literature was important. Primary search terms encompassed combinations such as "suicid*, train*, interven*" and "crisis intervention, suicide* and suicide attempts." Subsequently, secondary searches were conducted within the initial results, incorporating terms like "suicid* and gatekeep*" or "suicid* and self-efficacy" to further refine the search outcomes. Please refer to Appendix A for a detailed list of all search terms and search results. While many previous content analysis studies have a time period as a restriction for their searches (see Clark et al., 2018; McKibben et al., 2017; Prosek & Burgin 2020), Neuendorf (2017) noted "with a small population, there may be no need to draw a smaller, representative sample of the population. Rather, all cases in the population may be included in the study, which would then be called a census" (p. 75). Therefore, the current content analysis did not restrict a time frame of publication in the existing literature.

To access diverse and relevant sources, searches were conducted across multiple databases (Krippendorff, 2019; Neuendorf, 2017). The researcher included searches through PsychInfo, Nursing and Allied Health database, Google Scholar, and ProQuest. This multi-database approach ensured the retrieval of a comprehensive pool of studies from various disciplines and research domains. To enhance the inclusivity of the content analysis, both peer-reviewed empirical studies and gray literature, such as dissertations and conference proceedings, were considered for inclusion. In addition to database searches, the study utilized reference lists of relevant articles to identify potentially valuable works that might have been missed during the primary search. This backward citation tracking approach further ensured the exhaustiveness of the literature search and helps to identify seminal or foundational works that warrant inclusion (Borenstein et al., 2009).

Sampling results

The process of identifying relevant literature followed a systematic approach, beginning with a comprehensive search that yielded 2,467 potential units of analysis. Please see Appendix A for details regarding specific search criteria and results yielded. After automatically removing duplicates, 903 potential units remained. The initial screening process, which focused on the applicability and relevance of the content, narrowed this field to 407 units. A meticulous re-examination of titles and abstracts further distilled the pool to 157 units. After a thorough screening of full texts, 51 units were identified for coding. Finally, during the coding phase, four units were excluded. First, the Gould et al. (2013) study was excluded because it did not evaluate the trainee outcomes such as knowledge and self-efficacy, but rather evaluated quality and duration of phone calls to a crisis-line by trained vs untrained volunteers. Second, the Hill et al.

(2023) study was excluded because it evaluated a gatekeeper training that is not associated with the gatekeeper training providers evaluated in this content analysis. Third, the Smith-Osbourne et al. (2017) study was excluded due to lack of direct evaluation of gatekeeper outcomes, and rather evaluating resiliency of platoon members after some have been trained in ASIST and some have not. Finally, Tompkins & Witt (2009) was excluded because it is an evaluation of the same dataset in a different study that was included (Tompkins et al., 2009).

Once those four articles were excluded from the 51 units identified for coding, there remained 47 units for coding. During the process of coding, the coders agreed to split two of the articles into two units. The first article, Bean and Baber (2011) was split because it was a comparison of two the same gatekeeper training, Connect, on two distinct populations: adults and youth. Bean and Baber were careful to record all demographic data and all measure results separately for these two populations, making the split not only logical, but statistically possible in the current study. The second article, Mueller-Williams et al. (2023) was a comparison of two distinct gatekeeper trainings, LivingWorks: Applied Suicide Intervention Skills Training (ASIST) and LivingWorks: Suicide Alertness for Everyone (SafeTALK). As with the Bean and Baber (2011) article, Mueller-Williams et al. (2023) were careful to separate all demographic data and results, making the separation of this article into two distinct units rational and possible for the current study. Finally, during the analysis portion, the researcher realized that two units were using the same data set (Link, 2018; Robinson-Link et al., 2020). All data pertaining to Link (2018) was carefully and methodically removed from all documents and spreadsheets, and the process was carefully documented for records. All of this brought the total number of units to 48. Within the 48 included units, the distribution of gatekeeper training providers was as follows: Connect was represented 4.2% ($n = 2$) of the sample; Kognito by 14.6% ($n = 7$); LivingWorks by

22.9% (*n* = 11); and QPR by the preponderance 58.3% (*n* = 28). Please review Figure 1 below.

Figure 1: PRIMSA flowchart
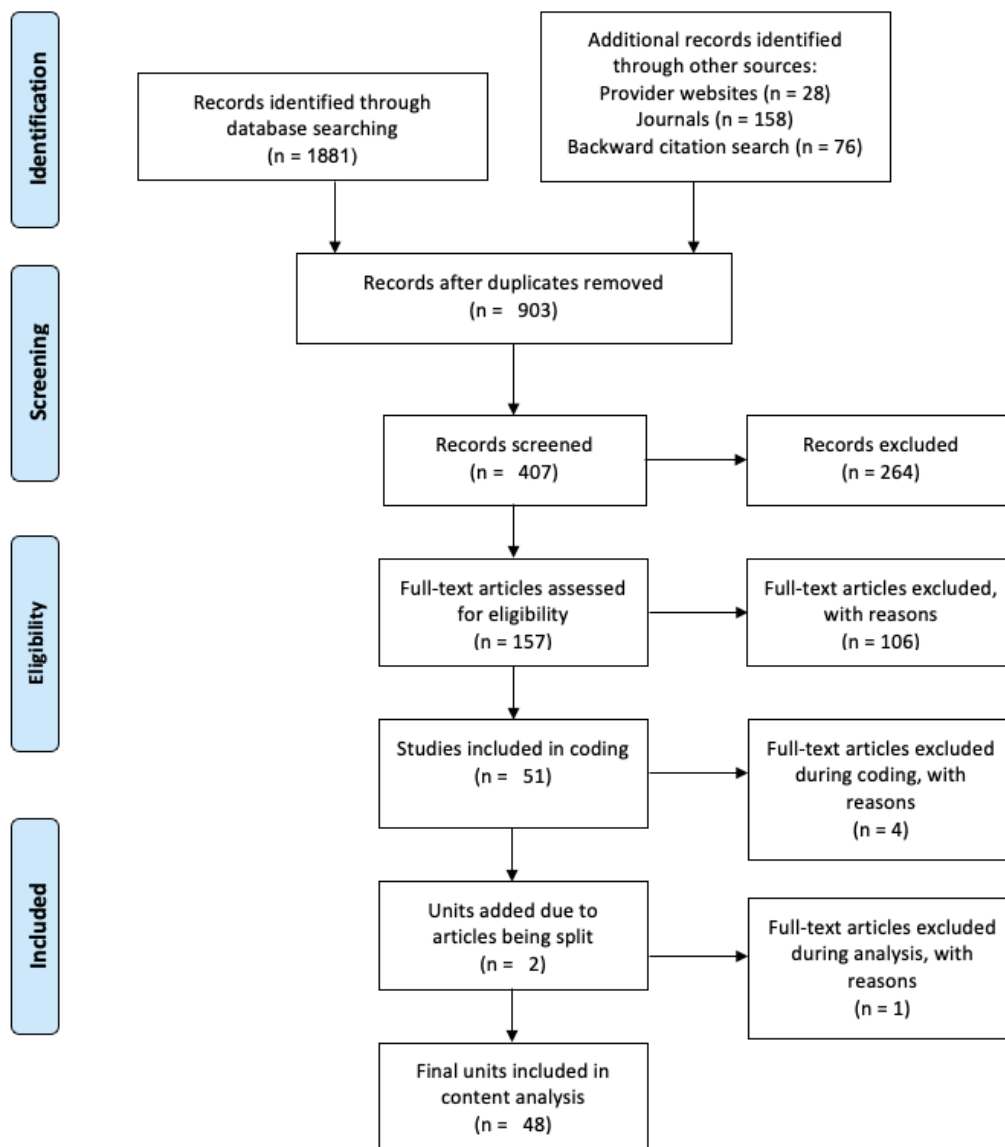
Figure 1: *PRISMA flowchart*

Recording

Recording is the process in which the researcher plans for the transferability of units between coding team members (Krippendorff, 2019), meaning, what and how the units are recorded for preparation of analysis. In this study, the units were the written text of each journal article. Krippendorff (2019) described that the researcher needs to set limits to the recording of units in the study. For the current study, the researcher reviewed the abstract, method, results, and discussions sections of each unit (i.e., journal article). Additionally, the research team recorded journal article information such as author names, type of publication, journal name, type of study, and journal impact factor. During recording, duplicate units were be removed from the sample.

The researcher adapted a pre-existing codebook (see Appendix A) to guide the coding process (Kuntz, 2019). Using an a priori codebook increases consistency and reliability in the analysis of the coded data (Krippendorff, 2019). The recording process was conducted by creating a Qualtrics survey of the codebook. Please refer to Appendix B for a detailed list of all questions in the Qualtrics survey. This process allowed research team members structure in the recording process, a standardized method of recording units, and an output that allows for a database to be easily extracted. This strategy helped minimize human errors from inputting data into a large spreadsheet. The primary researcher created this Qualtrics survey using display logic as appropriate to ensure the data entry process is clear, and further refined the codebook after testing with the secondary coder. For example, the coders found that while inputting data into the Qualtrics survey, there were not enough options to add measures. Some units had 12 measures, but originally the Qualtrics survey only allowed for data on 10 measures. The primary researcher updated the survey to allow for all measures. Additionally, the coders found that while some studies reported racial data, many conflated racial and ethnic data, leading to the need for a

textbox in the "other" category for both racial and ethnic data, allowing researchers to make appropriate notations.

Data analysis

Reducing

Reducing is the process by which the researcher simplifies the data in preparation for analysis (Krippendorff, 2019). For content analysis, depending on the codebook, there may be data reduced for statistical functions, such as frequency counts. For example, frequency counts of articles published in various outlets (see Prosek & Burgin, 2020). Additionally, the researcher may reduce or condense data in preparation for identifying key themes and patterns (Krippendorff, 2019). During reducing, researchers categorize similar units together based on shared content or thematic relevance (Krippendorff, 2019; Neuendorf, 2017). For the current analysis, units were categorized by research question: who is being trained, trainee knowledge outcomes, trainee self-efficacy outcomes, and training components (i.e., duration, format, educational method).

Inferring

Inferring is the process by which the researcher draws upon the coded data making inferences and interpretations (Krippendorff, 2019). In the current study, researchers made inferences and meaning regarding the outcomes and components of suicide gatekeeper training.

The inferring step is where the deductive approach to content analysis becomes clear. The researcher used an adaptation of Kuntz's (2019) a priori codebook, which categorized gatekeeper training outcomes into distinct categories including trainee knowledge, trainee self-efficacy, training duration, training format, educational components. The researcher adapted to include another category, trainee profession.

Part of the inferring process is testing the a priori codebook with the derived data (Schreier, 2012). The research team conducted a pilot test of the coding scheme on 10% of the units ($n = 5$) to assess its feasibility and refine the coding categories and definitions as needed. Through calibration exercises, the primary researcher and the doctoral student coding partner worked together to ensure consistency in coding decisions and establish a shared understanding of the coding criteria. After conducting the initial test on 10% of the units, the researcher and doctoral student made minor adjustments as needed to the codebook as described above. Once consensus was reached on the codebook, the researcher and doctoral student independently coded all units, ensuring that each unit was coded twice. This helped ensure a better sense of inter-rater reliability as well as giving the research team opportunities to discuss any units that proved complicated to code.

Narrating

Narrating is the process by which the researchers present the findings as answers to the research questions (Krippendorff, 2019; Prosek & Burgin, 2020). The researcher has presented the findings in a coherent and meaningful narrative that effectively communicates the results of the analysis. This involved organizing the findings into a logical structure and providing rich descriptions of the data, supported by illustrative examples (Krippendorff, 2019).

In narrating the findings, the researchers also calculated the inter-rater reliability. The researchers also offered transparency on any discrepancies or disagreements in coding and how they were discussed between the research team members, and consensus was reached through negotiation and discussion. Regular meetings and communication channels were established between the primary researcher and the doctoral student coder to provide ongoing support, guidance, and collaboration throughout the coding process. The primary researcher was available to address any questions or concerns raised by the doctoral student and provided feedback on coding decisions to ensure adherence to the coding scheme and research objectives. Both coders worked under the supervision of a faculty member.

Trustworthiness

In qualitative research the rigor of the study is represented by trustworthiness (Hays & Singh, 2023). The researcher employed several strategies for trustworthiness for the proposed content analysis. These strategies addressed validity, reliability, accuracy, and precision (Neuendorf, 2017).

Validity

Validity refers to the extent to which a study accurately measures or reflects the phenomenon it claims to measure or reflect (Neuendorf, 2017). In content analysis, validity ensures that the interpretations and conclusions drawn from the data are meaningful and relevant to the research questions (Neuendorf, 2017). To enhance validity in this study, multiple strategies

were employed. Reflexivity was used to ensure that the interpretations accurately reflect the units

of analysis (Hays et al., 2016). Additionally, a detailed description of methods and thick

description of findings facilitated the transferability of the findings to similar contexts or

populations, enhancing the overall validity of the study (Hays et al., 2016).

Reflexivity

Throughout the research process, reflexivity was maintained to acknowledge and address

the researcher's biases and preconceptions. Detailed reflexive notes were kept demonstrating

transparency and reflexivity in data interpretation, thereby enhancing the credibility of the

analysis (Neuendorf, 2017). These reflexive notes were made weekly for the duration of the data

collection and analysis phases. In these notes the researcher kept a record of her assumptions,

attitudes, and biases regarding the content of the study and each of the units involved. The

reflexive process is intended to keep the researcher in a posture of curiosity and self-awareness

(Hays et al., 2016). This is critical in qualitative data, as there is no way to remove the human

element from the process entirely, and therefore, biases and assumptions can change the way we

interpret findings.

Detailed description of methods

A comprehensive description of the research methods, including sampling procedures,

data collection techniques, and coding processes, was provided. This description facilitated the

transferability of the findings to similar contexts or populations, allowing readers to assess the

relevance and applicability of the findings to their own settings (Neuendorf, 2017). Following the

Open Science Framework (OSF; Center for Open Science, 2016; Foster & Deardorff, 2017) the

researcher will ensure that all relevant data and documentation are available freely to the public.

Open science refers to the movement to make scientific research, data, and dissemination

methods accessible to all levels of an inquisitive society, rather than keeping them solely within

the confines of academic institutions or behind paywalls (Foster & Deardorff, 2017). It aims to

make scientific processes, methodologies, and results transparent and available for scrutiny and

reuse by others. This transparency and accessibility can be achieved using various practices,

including open access publishing, open data sharing, open-source software, and transparent peer

review. For the current study, the researcher will make all documentation available through open

data-sharing practices, likely through OSF's Thesis Commons is "a free, cloud-based, open-

source platform for the submission, dissemination, and discovery of graduate and undergraduate

theses and dissertations from any discipline" (Center for Open Science, 2017). This platform

allows researchers to upload supplemental material and documentation, enabling all relevant

documentation to be accessible in one place.

Thick description of findings

Hays and colleagues (2016) noted the importance of thick descriptions in qualitative

research, specifying that thick descriptions are "detailed description of the research process and

outcome to allow the reader to apply findings and/or replicate a study" (p. 175). This method

involves providing a comprehensive report that not only describes the surface-level events or

observations but also delves deeper into the context, meanings, interpretations, and social

dynamics surrounding those events (Hays & Singh, 2023). In the current study, the researcher has

provided thick descriptions for the educational methods, which will provide readers an

understanding of the nature and flow of each gatekeeper training. The researcher also provided

thick descriptions of the populations in the study, namely the various professions to which each of

the gatekeeper trainees belongs. Such information could help give context to how various trainees

are engaging with the training. Finally, the researcher provided thick descriptions of the findings

of this study, paying close attention to contexts in which trainings were provided and how the

outcomes can be interpreted to benefit fields of natural helpers to become suicide gatekeepers.

These various thick descriptions enable readers to understand the context and nuances of the

findings, enhancing their ability to transfer the findings to other contexts or populations (Hays et

al., 2016).

Reliability

Reliability refers to the consistency and repeatability of the research findings (Carmines

& Zeller, 1979; Neuendorf, 2017). In content analysis, reliability ensures that the coding process

is consistent across different coders and coding instances (Neuendorf, 2017). Inter-coder

reliability was established through coder training, pilot tests, and assessment of agreement levels.

This will ensure consistency in coding decisions and enhance the dependability of the analysis.

Additionally, maintaining a detailed audit trail allowed for the traceability of decisions made

throughout the research process, further enhancing reliability.

Inter-coder reliability

Inter-coder reliability, also known as inter-rater reliability, is a measure used in qualitative research to assess the consistency or agreement among different coders or raters when analyzing the same set of qualitative data (Neuendorf, 2017; Krippendorff, 2019). This is particularly important in studies where multiple researchers are involved in coding or categorizing data, such as in content analysis or thematic analysis. Inter-coder reliability was established through coder training, pilot tests, and assessment of agreement levels. This ensured consistency in coding decisions, thereby enhancing the dependability of the analysis (Neuendorf, 2017). As stated above in the Procedures and Data analysis sections, the research team conducted pilot testing of the codebook on 10% of the units to assess its feasibility and refine the coding categories and definitions as needed. The primary researcher and the doctoral student worked together to ensure consistency in coding decisions and established a shared understanding of the coding criteria. Any discrepancies or disagreements in coding were discussed between the research team members, and consensus was reached through negotiation and discussion. Regular meetings and communication channels were established between the primary researcher and the doctoral student to provide ongoing support, guidance, and supervision throughout the coding process. The primary researcher was available to address any questions or concerns raised by the doctoral student and provide feedback on coding decisions to ensure adherence to the coding scheme and research objectives. The research team also utilized Krippendorff's alpha (Krippendorff, 2019), a statistical measure that accounts for the possibility of agreement occurring by chance. It takes into consideration both the observed agreement between coders and the agreement expected by chance, providing a more robust assessment of inter-coder reliability

(Krippendorff, 2019). The calculation for Krippendorff's alpha is:

$$\alpha = 1 - \frac{D_o \ (observed \ disagreement)}{D_e \ (expected \ disagreement)}$$

For the current study, the expected disagreement was .10, which is an acceptable range. The observed disagreement was 0.073, making Krippendorff's alpha for the inter-coder reliability:

$$\alpha = 1 - \frac{7.1}{25} = \ 0.716$$

While the ideal inter-coder reliability is higher ($\alpha > .800$), The results show a good level of inter-coder reliability ($\alpha = .716$) among the three coders. Intercoder reliability was calculated using IBM SPSS Statistics (Version 27).

Audit trail

In qualitative research, an audit trail refers to a systematic documentation process that records and tracks the decisions, actions, and steps taken throughout the research process (Hays et al., 2016; Hays & Singh, 2023). The purpose of an audit trail is to enhance the trustworthiness and credibility of the research findings by providing transparency and accountability regarding the methods used and the interpretations made. Krippendorff (2019) asserted that "audits by themselves are inconsequential" (p. 61) and noted that in order to make an audit relevant, it is critical for content analysts to include not only the choices that are made during a study but

provide rational for those choices (e.g., adding a new theme to the codebook is the choice, the

reason behind that choice is the need to account for a phenomenon or emerging trend in the

units). For this study, the researcher maintained a detailed audit trail documenting all stages of the

research process including data collection, coding, and analysis, and of course rational for any

changes and decision made. This transparent documentation enhanced the dependability of the

findings and allow for traceability of decisions made throughout the research process. This was in

part accounted for in the reflexive notes where the researcher detailed her personal processes, but

was also accounted for in more official records such as meeting notes from research team

meetings, dissertation committee meetings, and advisory meetings.

Accuracy and precision

Accuracy refers to the degree of closeness between the measured value and the true value

of the phenomenon being studied (Neuendorf, 2017). In content analysis, accuracy ensures that

the interpretations and conclusions drawn from the data reflect the content accurately (Neuendorf,

2017). Precision refers to the level of detail and specificity in the measurement or analysis of a

phenomenon (Neuendorf, 2017). In content analysis, precision ensures that the coding categories

and definitions are clear and well-defined (Neuendorf, 2017). To address accuracy and precision

in this study, detailed coding schemes and clear criteria for coding was developed. This ensured

that the coding process accurately captures the intended concepts and themes in the data.

Additionally, peer debriefing was used to validate interpretations and enhance the accuracy of the

findings. Maintaining detailed documentation of the coding process also facilitated transparency

and precision in the analysis.

Summary of methodology

There are identified gaps in suicide gatekeeper training literature related to training outcomes, particularly concerning trainee knowledge and trainee self-efficacy. These gaps can be appropriately addressed through qualitative research. The researcher has identified that content analysis, using a deductive approach, is the most appropriate course for the current study. The researcher followed Krippendorff's (2019) six-steps for content analysis (unitizing, sampling, recording, reducing, inferring, and narrating). Several strategies for trustworthiness were put in place to address concerns related to validity, reliability, accuracy, and precision (Neuendorf, 2017). Ultimately, the researcher aimed to add valuable insight to the literature regarding suicide gatekeeper trainings including outcomes for trainees and components of the training.

Chapter 4

Results

This chapter delineates the results derived from the content analysis, structured to address

the four research questions posited in the study:

1. Who are the natural helpers receiving gatekeeper training?
2. To what extent do gatekeeper trainings improve trainee knowledge?
3. To what extent do gatekeeper trainings improve trainee self-efficacy?
4. What are the various components of gatekeeper trainings?

The literature review process began with a comprehensive search yielding 2,467 potential

units. After removing duplicates and screening for relevance, 51 units were selected for coding.

Four units were excluded due to various reasons such as irrelevant outcomes or duplication,

resulting in 47 units. During coding, two articles were split into two units each for distinct

populations. Additionally, it was discovered that two units were using the same dataset,

prompting careful removal of redundant data. This brought the total number of units to 48 for

analysis. Within the 48 included units, the distribution of gatekeeper training providers was as

follows: Connect was represented 4.2% ($n = 2$) of the sample; Kognito by 14.6% ($n = 7$);

LivingWorks by 22.9% ($n = 11$); and QPR by the preponderance 58.3% ($n = 28$).

Sources

The majority of the units ($n = 40$; 83.3%) analyzed in this study were sourced from peer-

reviewed journal articles, and the remaining units were doctoral dissertations and master's theses

(n = 7; 14.6%). Please see Table 1 below. The 48 units under analysis were culled from 26

different journals, and together they illuminate the multifaceted nature of gatekeeper training

research. A total of 20 journals were represented by a single unit, equivalent to 76.9% of the

journals represented, signifying a broad yet dispersed academic interest. Two journals each

provided two units, the *Journal of College Student Development,* and the *Journal of College*

Student Psychotherapy, which accounts for 7.7% of the journals. Similarly, three journals

contributed three units each, the *Community Mental Health Journal, Crisis-The Journal of Crisis*

Intervention and Suicide Prevention, and the *Journal of American College Health,* representing

11.5% of the journals. Distinctly, the journal *Suicide and Life-Threatening Behavior* was a

prominent source, contributing approximately 14.3% (n = 7) of the total units, thereby affirming

its role as a pivotal platform for research dissemination in this domain.

Table 1: *Journal frequency by unit*

Journal Name	Reference
Archives of Suicide Research	Matthieu et al., 2008
Child Welfare	Kahsay et al., 2020
Community Mental Health Journal	Magness et al., 2023
	Mueller-Williams et al., 2023 (ASIST)
	Mueller-Williams et al., 2023 (SafeTALK)
Counselor Education & Supervision	Shannonhouse et al., 2018
Crisis-The Journal of Crisis Intervention and Suicide Prevention	Gryglewicz et al., 2017
	Godoy Garraza et al., 2021
	Samoulis et al., 2020
Educational Gerontology	Mize et al., 2022
Health Behavior and Policy Review	Timmons-Mitchell et al., 2019
Health Education Journal	Aldrich et al., 2018
Journal of American College Health	Smith-Millman et al., 2022
	Rein et al., 2018
	Shannonhouse et al., 2017 (college staff)
Journal of College Student Development	Adams et al., 2018

	Indelicato et al., 2011
Journal of College Student Psychotherapy	Tsong et al., 2019
	Mitchell et al., 2013
Journal of Consulting and Clinical Psychology	Wyman et al., 2008
Journal of Counseling & Development	Shannonhouse et al., 2017 (K-12)
Journal of Evidence-Based Social Work	Cerel et al., 2012
Journal of Human Behavior in the Social Environment	Wood et al., 2023
Journal of Social Work Education	Osteen et al., 2014
Journal of Social Work in End-Of-Life & Palliative Care	Matthieu & Swensen, 2014
Journal of Technology in Behavioral Science	Bradley & Kendall, 2019
Journal of the American Pharmacists Association	Painter et al., 2018
Mental Health & Prevention	Witry at al., 2020
NASN School Nurse	Johnson & Parson, 2012
Professional Psychology-Research and Practice	Keller et al., 2009
Professional School Counseling	Reis & Cornell, 2008
Research on Social Work Practice	Jacobson et al., 2012
School Mental Health	Robinson-Link et al., 2020
Suicide and Life-Threatening Behavior	Tompkins et al., 2009
	Cross et al., 2007
	Bean & Baber, 2011 (Adults)
	Bean & Baber, 2011 (Youth)
	Coleman et al., 2019
	Ewell Foster et al., 2017
	Osteen et al., 2021
Dissertation/Thesis	Bell, 2015
	Cascamo Jr., 2013
	Davis, 2019
	Duong-Killer, 2015
	Goldstein, 2017
	Hempel Rhudy, 2019
	Hickey, 2022
	Yeates, 2018

Sample details

   The criteria for the search did not impose any date restrictions, allowing for the collation of a comprehensive sample representative of all relevant research. However, it is notable that the earliest work included was published in 2007. Since then, the temporal distribution of studies has been as follows: one unit from 2007, three from 2008, two from 2009, three each from 2011 and 2012, two from 2014, two from 2015, five from 2017, seven from 2018, six from 2019, four from 2020, and two from both 2021 and 2022. The year 2023 contributed four units, demonstrating a sustained academic interest in gatekeeper training over the years. Please refer to Figure 2 below for a breakdown of the number of articles per year from each of the 26 journals.
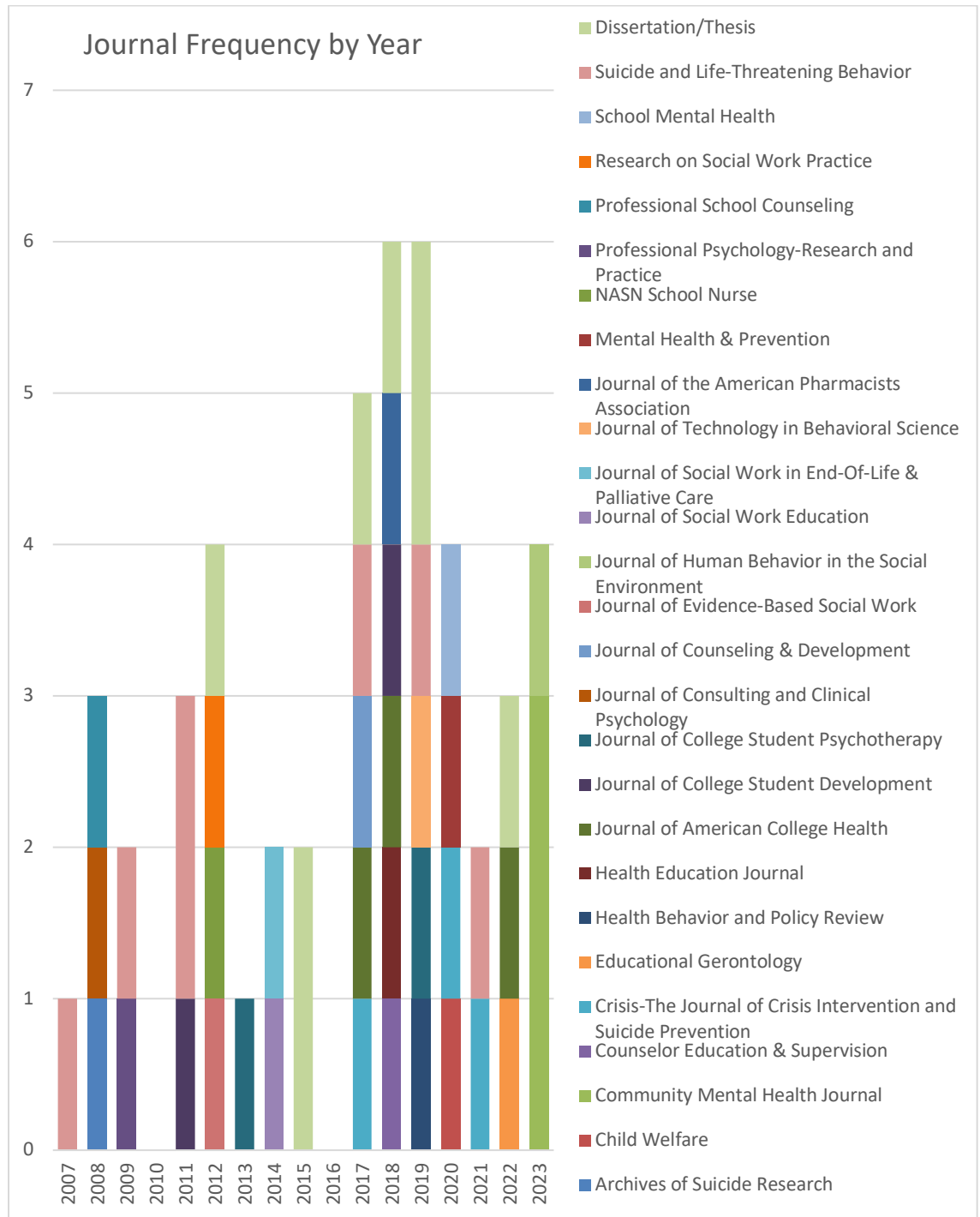
Figure 2: *Journal frequency by year*

Journal details

The scope of target audiences and professional domains encompassed by the 26 journals from which the units were derived highlights the cross-disciplinary interest in suicide gatekeeper training. Journals centered on suicide-specific topics represented 11.5% ($n = 3$) of the total units. General mental health-focused journals contributed two, accounting for about 7.7%, and those concentrating on social work totaled five, or 19.2% of the journals, with one specifically addressing issues pertaining to older adults. Psychology-related journals, including one with a focus on college students, contributed three, which is 11.5%. Two journals, or 7.7%, were dedicated to school counseling, with the same percentage for counselor education journals. The medical field was represented by two journals, approximately 7.7%, with one each specializing in pharmacy and nursing. Human development also had two journals, around 7.7% of the total, with one emphasizing research on college-aged individuals. Behavioral science and health-related journals each made up one (3.8%) and three (11.5%) of the total, respectively, with the latter including specializations on older adults and college students. Please refer to Figure 3 below for a breakdown of each journal per professional domain.
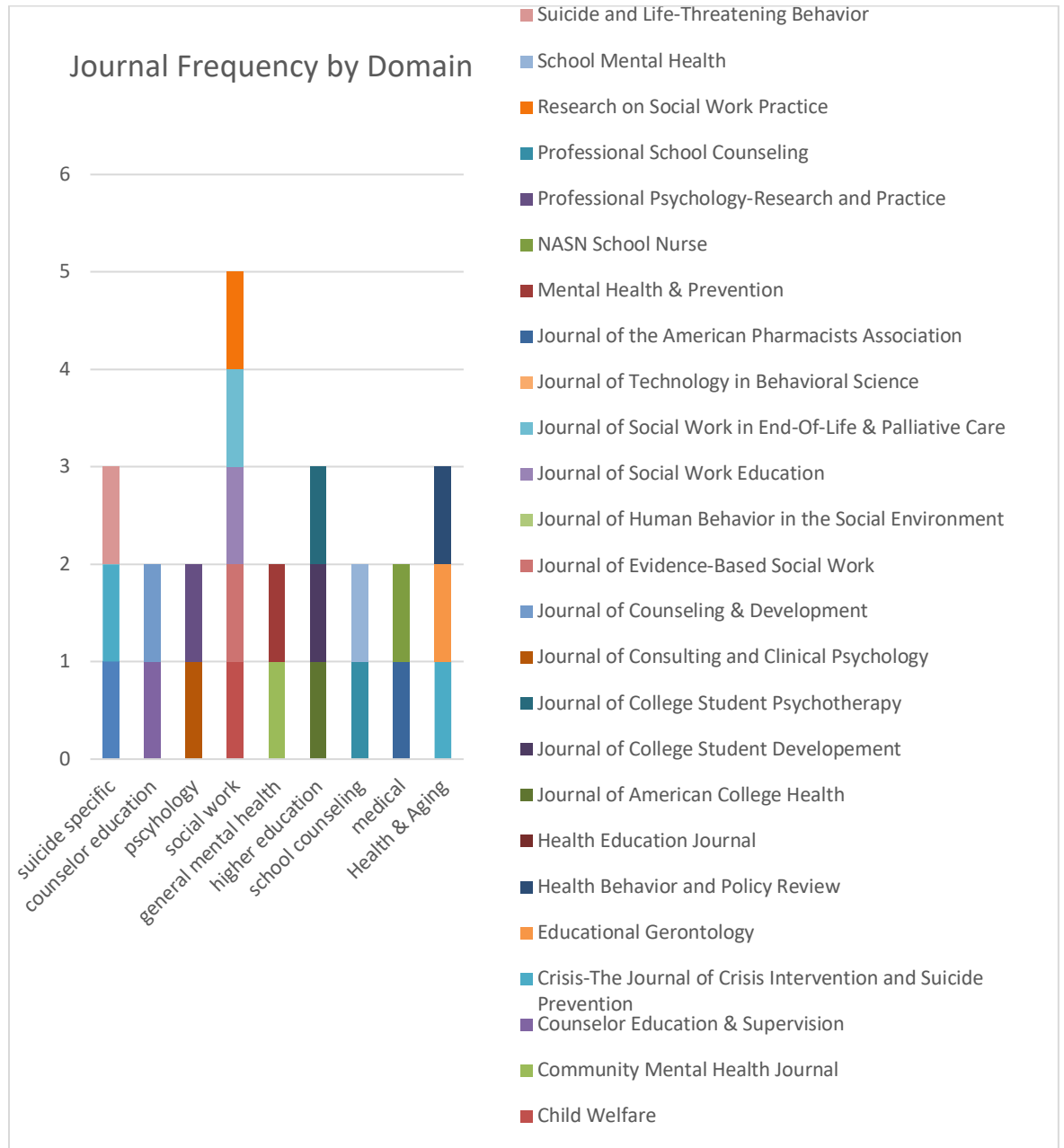
Figure 3: *Journal frequency by domain*

Study design

In terms of study design, the collection featured a diverse array of research
methodologies (Table 2). The vast majority of units were a quasi-experimental ($n = 40$; 83.3%).
These studies were either within-group or between-group comparisons, offering insights into the
effects of the training programs with the understanding that such designs may have constraints in
establishing definitive causal inferences. Five units (10.4%) utilized the rigorous randomized
control trial (RCT) method. In the "other" category, 3 units (6.3%) were non-equivalent control
(Tompkins et al., 2009) or waitlist-control (Shannonhouse et al., 2017a; 2017b), and one unit
(2.1%) was a mixed-method design (Bradley & Kendall, 2019). Each of the 48 units (100%)
reported their study design, leaving no units with unidentified study designs. For a more
comprehensive breakdown of study design not only by provider but by training type, please
review Appendix L: *Study design by training*.

Table 2: *Study design frequency by provider*

Provider	RCT		Quasi-experimental		Other		Control group?		Not reported	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	0		9	18.8%	2	4.2%	3	6.3%	0	
QPR	4	8.3%	23	47.9%	1	2.1%	6	12.5%	0	
Kognito	1	2.1%	6	12.5%	1	2.1%	1	2.1%	0	
Connect			2	4.2%						
Total	5	10.4%	40	83.3%	4	8.3%	10	20.8%	0	

Note. $N = 48$ refers to the total number of units in this content analysis.

Research questions 1: Who are the natural helpers receiving training?

As discussed in chapters one and two, natural helpers are not limited to a single profession but can be anyone who has contact with people at risk of suicide. In order to answer the first research question, the researcher collected information regarding various factors related to the identity of gatekeeper trainees (natural helpers). Those factors include number of trainees per training, predominant sex, racial and ethnic identities, and professional sectors. The following sections include a description of the data from each of these three factors as well as tables describing frequencies/counts and percentages by gatekeeper training provider. For example, the first section will describe how many units reported a predominantly female sample from each provider (LivingWorks, QPR, Kognito, and Connect).

Number of trainees

How trainee numbers are reported

It should be noted that not all units reported number of trainees consistently. Some units reported the total number of trained individuals as well as the number of trainees who completed pre-post testing ($n = 11$; 22.9%); some reported only the number of trainees who completed pre-post testing ($n = 22$; 45.8%); and finally, some reported the numbers of trainees at both pre-post testing as well trainees who completed follow-up testing ($n = 13$; 27.1%). It should also be noted among the units ($n = $; %) that reported follow-up number, there were varying lengths of follow-up testing time including two months ($n = 1$; 2.1%; Coleman et al., 2019), three months ($n = 10$; 20.8%), six months ($n = 7$; 14.6%), three-to-six months ($n = 1$; 2.1%; Mitchell et al., 2013), both

six and nine months (n = 1; 2.1%; Adams et al., 2018), and 12 months (n = 1; 2.1%; Wyman et al., 2008). Please refer to Table 3 below for a breakdown of average number of trainees per training and training provider.

Table 3: *Total number of trainees by provider*

Provider	Trained	Pre-Post	Follow up	Follow up timeframe
LivingWorks	711	2538	833	833 at 6 mos
QPR	19740	10241	1563	939 at 3 mos 760 at 6 mos 15 at 9 mos 122 at 12 mos
Kognito	52556	41249	5056	24 at 2 mos 4930 at 3 mos 102 at 6 mos
Connect		852		
Total	73007	54880	7452	

LivingWorks	Trained	Pre-Post	Follow up	Follow up timeframe
Start		736		
SafeTALK	277	625	315	315 at 6 mos
ASIST	434	1177	518	518 at 6 mos
Total	711	2538	833	

QPR	Trained	Pre-Post	Follow up	Follow up timeframe
Standard QPR Gatekeeper Training	4868	7469	850	642 at 3 mos 344 at 6 mos 15 at 9 mos 122 at 12 mos
Adapted QPR Gatekeeper Training	764	1054	249	249 at 3 mos
Adapted QPR training not specified	14000	1445	416	416 at 6 mos
QPR for First Responders	108	95	48	48 at 3 mos

		178		
Total	19740	10241	1563	

Kognito	Trained	Pre-Post	Follow up	Follow up timeframe
At-Risk for College Students		33	24	24 at 2 mos
At-Risk for College Students AND At-Risk for Faculty & Staff	9299	3104	412	310 at 3 mos 102 at 6 mos
At-Risk for Middle School Educators	43257	33724	3839	3839 at 3 mos
At-Risk for Middle School Educators AND At-Risk for High School Educators		4388	781	781 at 3 mos
Total	52556	41249	5056	

Calculating average trainee N per training

Because the total number of trainees in a given unit range from N = 10 to N = 43,257 the researcher chose to calculate medians rather than means. This is to ensure a more accurate picture of the approximate average number of trainees per training by provider. While the reporting of Ns is inconsistent as described above, the vast majority of units (n = 42; 87.5%) reported at least pre-post numbers. Therefore, the researcher chose to use pre-post numbers to give an estimated average calculation. There are 11 LivingWorks units (22.9%), with pre-post participant numbers

ranging from $n = 20$ to $n = 736$; the LivingWorks pre-post median is 176. There are 28 QPR units

(58.3%), with pre-post participant numbers ranging from $n = 10$ to $n = 3958$; the QPR pre-post

median is 131.5. There are 7 Kognito units (14.6%), with pre-post participant numbers ranging

from $n = 20$ to $n = 33704$; the Provider pre-post median is 1552. There are 2 Connect units

(4.2%), with pre-post participant numbers ranging from $n = 204$ to $n = 648$; the Connect pre-post

median is 426. For a more comprehensive breakdown of Ns and medians per training please

review Appendix D: Median N per training.

Predominant sex of trainees

A significant observation from the analysis pertains to demographic disparities,

particularly concerning the predominant sex, race, and ethnicity of the trainees Please refer to

Table 4 below. A large portion of the units ($n = 38$; 79.2%) consisted of trainees where more than

half were female. Conversely, only two units (4.1%), reported a majority of male trainees

(Matthieu et al., 2008; Osteen et al., 2021). It is should be noted that both the units that reported a

majority of male participants used adapted versions of the standard QPR Gatekeeper Training,

and that the predominant professional sector were military personnel (staff for the Department of

Veteran Affairs; VA) and law enforcement officers (LEOs) respectively. Several units ($n = 8$;

16.7%) did not report the predominant sex of trainees. For a more comprehensive breakdown of

reported predominant sex not only by provider but by training type, please review Appendix E:

Predominant sex per training. Sex and gender are important factors about natural helpers who

receive suicide gatekeeper training, but other factors such as race and ethnicity must also be taken

into consideration. This will be discussed below.

TABLE 4: *Predominant sex of trainees by provider*

Provider	More than 50% female		More than 50% male		Not reported		Reported gender diversity	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	10	20.8%	0		1	2.1%	0	
QPR	22	45.8%	2	4.2%	4	8.3%	0	
Kognito	6	12.5%	0		1	2.1%	0	
Connect					2	4.2%		
Total	38	79.2%	2	4.2%	8	16.7%	0	

Note. $N = 48$ refers to the total number of units in this content analysis.

Race and ethnicity of trainees

Of the 48 units in this content analysis, 22 (45.8%) reported that more than 70% of their trainees identified as white (Table 5: *Race and ethnicity of trainees by provider*). Few units ($n = 5$; 10.4%) reported a majority of trainees who identified with minoritized racial or ethnic identities. It should be noted that many units ($n = 22$; 45.8%) also conflated race and ethnicity, reporting them together often in mostly categories of race with the ethnic identify of Hispanic/Latinx. The conflation of race and ethnicity in so many studies complicated the accurate breakdown of these categories. Some studies ($n = 7$; 14.6%) recorded both and intentionally reported racial and ethnic percentages separately. It should be noted that while several units ($n = 6$; 12.5%) reported only racial identity and did not report any ethnic data, there were no units that reported only ethnicity. Finally, several studies ($n = 8$; 16.7%) did not report any racial or ethnic data for their trainees. For a more comprehensive breakdown of reported racial and ethnic data not only by provider but by training type, please review Appendix F: Race and ethnicity per training. After reviewing predominant sex as well as race and ethnicity of trainees, the next factor considered for research question one is the professional sector of trainees.

Table 5: *Race and ethnicity of trainees by provider*

Provider	Reported race only		Reported ethnicity only		Reported both race and ethnicity		Reported conflation of race and ethnicity		Did not reported race or ethnicity		more than 70% white		Majority minoritized race or ethnicity	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48
LivingWorks	0		0		3	6.3%	6	12.5%	2	4.2%	4	8.3%	1	2.1%
QPR	5	10.4%	0		3	6.3%	12	25.0%	3	6.3%	14	29.2%	3	6.3%
Kognito	1	2.1%	0		1	2.1%	4	8.3%	1	2.1%	4	8.3%	1	2.1%
Connect									2	4.2%				
Total	6	12.5%	0		7	14.6%	22	45.8%	8	16.7%	22	45.8%	5	10.4%

N = 48 refers to the total number of units in this content analysis.

Professional sector of trainees

For the purpose of this content analysis, the natural helpers who attended the gatekeeper trainings are categorized into various professional sectors. This categorization is intended to answer the first research question more fully regarding the identity of gatekeeper trainees. It is important to note that while some units concentrated on a singular profession or role, others encompassed a more diverse pool of sectors. Additionally, categorization of certain trainee groups, such as pharmacy students, presented a dual affiliation with both the educational sector at the university level and the healthcare sector among medical professions. For the purposes of clarity and to facilitate discussion, trainee professions and roles were grouped into six distinct sectors: educational, healthcare, social services, emergency and law enforcement, religious and faith-based organizations, and the military. Below is a description of the professional sectors represented by the units in this content analysis (Table 6: *Professional sector of trainees by provider)*. For a more comprehensive breakdown of reported professional sector data not only by provider but by training type, please review Appendix G: Professional sector of trainees per training.

In the educational sector, a large number of units ($n = 22$; 52.1%) had at least some participants in the university level as undergraduate students, graduate students, faculty, and other university personnel. Also part of the educational sector, a large portion of the units ($n = 18$; 37.5%) had at least some participants in the K-12 category including teachers, school counselors and other non-teacher staff, students, and parents. Moving to the health care sector, medical was the third-most represented group ($n = 14$; 29.2%) with two studies dedicated exclusively to pharmacists (Painter et al., 2018; Witry et al., 2020) and one study dedicated exclusively to nursing students (Goldstein, 2017). This was followed closely by mental health ($n = 12$; 25%). The social services sector involved trainees from child and family services ($n = 12$; 25%)

including social workers, foster parents, and folks involved in juvenile justice; Indigenous and tribal services ($n = 2$; 4.2%); and government ($n = 1$; 2.1%).

The remaining sectors included first responders ($n = 8$; 16.7%); religious and faith-based organizations ($n = 3$; 6.3%); military personnel ($n = 2$; 4.2%); and finally, groups reported as "other" or otherwise not specified in the units ($n = 4$; 8.3%). All units reported professional sectors for their participants, even if portions of those identified sectors were labeled "other", no unit had 100% trainees without an identified professional sector. After reviewing predominant sex, race and ethnicity of trainees, as well as professional sector, the final factor considered for research question one is the participation status of trainees, that is, whether trainees participated in the training voluntarily or if it was mandatory.

Table 6: *Professional sector of trainees by provider*

Provider	Education Sector				Health Care Sector				Social Services Sector														
	University		K-12		Medical		Mental Health		Child & Family Services		Indigenous & Tribal Services		Government		First responders		Religion & Faith		Military		Other	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48
Living Works	5	10.40%	5	10.40%	5	10.40%	5	10.40%	4	8.30%	2	4.20%	0		3	6.30%	1	2.10%	1	2.10%	3	6.30%
QPR	16	33.30%	8	16.70%	8	16.70%	6	12.50%	7	14.60%	0		1	2.10%	4	8.30%	2	4.20%	1	2.10%	1	2.10%
Kognito	4	8.30%	3	6.30%	0		0		1	2.10%	0		0		0		0		0			
Connect			2	4.20%	1	2.10%	1	2.10%							1	2.10%						
Total	25	52.10%	18	37.50%	14	29.20%	12	25.00%	12	25.00%	2	4.20%	1	2.10%	8	16.70%	3	6.30%	2	4.20%	4	8.30%

N = 48 refers to the total number of units in this content analysis.

Participation status

The gatekeeper training studies included in this content analysis revealed varied participation dynamics as shown in Table 7 below. Some units ($n = 3$; 6.25%) noted that participants were mandated to attend training (Adams et al., 2018; Goldstein et al., 2017; Witry et al., 2020). These mandatory instances were typically stipulated as part of professional development for educators and school personnel, or as an integral component of job training for roles such as Resident Advisors on college campuses. Some units ($n = 32$; 66.7%) noted that trainees voluntarily attended. Several ($n = 8$; 16.7%) specified that attendance was mixed. Finally, some units ($n = 6$; 12.5%) did not report on participation. For a more comprehensive breakdown of participation not only by provider but by training type, please review Appendix H: Participation status per training.

Table 7: *Participation of trainees by provider*

Provider	Voluntary		Mandatory		Mixed		Not reported	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	8	16.7%	0		2	4.2%	1	2.1%
QPR	21	43.8%	3	6.3%	0		4	8.3%
Kognito	2	4.2%	0		5	10.4%	1	2.1%
Connect	1	2.1%			1	2.1%		
Total	32	66.7%	3	6.3%	8	16.7%	6	12.5%

Note. $N = 48$ refers to the total number of units in this content analysis.

Research questions 2: To what extent do gatekeeper trainings improve trainee knowledge?

This section addresses the second research question, exploring the extent to which gatekeeper

trainings improve the knowledge of participants. Recognizing that there is no universally

established definition of the knowledge requisite for a suicide gatekeeper, nor a standardized

measure for this knowledge, the analysis of the 48 units reveals a considerable diversity in the

evaluation tools employed. Researchers observed a total of 84 measures used across all included

units. Among these measures, there were 36 unique instruments used to measure knowledge. The

researcher broke those 36 knowledge measures into four categories: Factual knowledge, received

self-knowledge, procedural knowledge, and knowledge-not specified. Table 8: *Knowledge*

frequency by provider provides a breakdown of the frequency of each of these four categories

found per each provider, as well as the number of units that did not use a knowledge measure. It

should be noted that a unit may use more than one scale to measure knowledge, even the same

category of knowledge. For a more comprehensive breakdown of knowledge measures not only

by provider but by training, please review Appendix J: Knowledge measure frequency per

training.

Table 8: *Knowledge frequency by provider*

Provider	Knowledge - not specified		Factual knowledge		Perceived self-knowledge		Procedural knowledge		Did not measure knowledge	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	3	6.3%	4	8.3%	1	2.1%	8	16.7%	0	
QPR	1	2.1%	14	29.2%	13	27.1%	10	20.8%	5	10.4%
Kognito	0		0		1	2.1%	0		6	12.5%
Connect	2	4.2%	0		0		0		0	
Total	6	12.5%	18	37.5%	15	31.3%	18	37.5%	11	22.9%

Note. N = 48 refers to the total number of units in this content analysis.

Types of knowledge

There were several units (n = 6; 12.5%) that measured knowledge but did not report enough information for the researcher of this study to ascertain the appropriate category. Other units (n = 11; 22.9%) did not measure knowledge at all. For the rest of the units, the definition of knowledge within the scope of the units included in this study can be categorized as follows:

Factual knowledge

Factual knowledge was measured by many units (n = 18; 37.5%). Factual knowledge involves the understanding of established facts, principles, and concepts widely recognized in the field of suicide prevention. One example would be a lists of risk factors such as substance use increase or recent job loss. Other examples of factual knowledge would be identifying the difference between myths and facts about suicide. One such myth may be the misconception that talking about suicide gives someone the idea. These tools can include measures that range from single-item scales to those embedded within multifaceted tools that assess additional variables.

Perceived self-knowledge

Perceived self-knowledge was measured by quite a few units (n = 15; 31.3%). Perceived self-knowledge reflects an individual's self-assessment of their comprehension and capabilities in suicide prevention. Examples include responding to a Likert-type scale about one's comfort with knowledge if suicide warning signs. This is distinct from self-efficacy which would measure one's comfort identifying and approaching a person exhibiting suicide warning signs. These

Perceived self-knowledge measurements are integral as they encapsulate the trainees' confidence in their understanding, which can influence their willingness to intervene in potential suicide situations.

Procedural knowledge

Procedural knowledge was measured by several units ($n = 18$; 37.5%). Procedural knowledge pertains to the know-how of carrying out specific tasks and interventions crucial to suicide prevention. For example, a multiple-choice questionnaire may ask trainees to identify the correct procedural step (as laid out by the training) given a case presentation. Procedural knowledge encompasses the practical skills and actions essential for implementing suicide prevention measures effectively.

Extent to which gatekeeper trainings improve trainee knowledge

While the diversity of evaluation tools presents challenges, the trend in knowledge acquisition post-training is notably positive. Knowledge was measured a total of 68 times across 38 units (79.2%). Of those 68 times that knowledge was measured 41 were reported at pre-post (60.3%) and 27 were reported pre-test to follow-up (39.7%). The pre-post and pre-follow up p-values indicate the impact of training over time. Simply put, the pre-post p-value indicates how much the training changed the item being measured, or how much did the training improve knowledge. Because the research question for this study is focused on the extent to which gatekeeper trainings improve trainee knowledge, The researcher evaluated the frequency of various p-values across knowledge measures at pre-post. Of the 41 total pre-post knowledge

measures recorded (*n* = 5; 12.2%) reported p < .05; (*n* = 1; 2.4%; Osteen et al., 2021) reported p <

.01; (*n* = 30; 73.2%) reported p < .001; (*n* = 2; 4.9%; Cross et al., 2007; Tsong et al., 2019)

reported p < .0001. This indicates that the majority of the gatekeeper trainings evaluated in this

content analysis show a statistically significant improvement in trainee knowledge. For a more

comprehensive breakdown of knowledge measure p-values, please review Table 9 below.

Table 9*: Knowledge p-value by training*

Unit	Specific Training	Knowledge measure used in unit	Type of knowledge measured	Pre-Post		Pre-Follow up		Post-Follow up		Follow up time frame
				n	*p*-value	*n*	*p*-value	*n*	*p*-value	
Adams et al., 2018	QPR Gatekeeper Training	Knowledge (no name, adapted from QPR)	Factual knowledge AND Procedural knowledge			41	*p* < .0001			6 mos
						15	*p* < .0001			9 mos
Aldrich et al., 2018	QPR Gatekeeper Training	none								
Bean & Baber, 2011 (Adults)	Connect Gatekeeper Training	Knowledge (no name, adapted from QPR)	Knowledge - not specified	648	*p* < .001					
Bean & Baber, 2011 (Youth)	Connect Gatekeeper Training	Knowledge (no name, adapted from QPR)	Knowledge - not specified	204	p < .001					
Bell, 2015	QPR Gatekeeper Training	Pre-test and Follow-up survey (no name, developed by the QPR Institute)	Factual knowledge AND Procedural knowledge	413	*p* < .001	413	*p* < .001			3 mos
Bradley & Kendall, 2019	At-Risk for Middle School Educators	none								
Cascamo Jr., 2013	QPR Gatekeeper Training	none								
Cerel et al., 2012	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper	Perceived self-knowledge	3958	*p* < .001					

		Role Scale also called Gatekeeper Training Evaluation								
Coleman et al., 2019	At-Risk for College Students	none								
Cross et al., 2007	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	76	p < .0001					
Davis, 2019	ASIST	Post-intervention scenarios	Procedural Knowledge		not reported					
		Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	Procedural Knowledge	20	p = .007					
Duong-Killer, 2015	QPR Gatekeeper Training	QPR Suicide Prevention Survey	Factual knowledge AND Procedural knowledge	502	p < .001					
Ewell Foster et al., 2017	ASIST	Gatekeeper Training Practice Issues	Procedural Knowledge	434	p < .001	285	p < .001			6 mos
Godoy Garraza et al., 2021	MODIFIED (QPR vs QPR+ role play) QPR Gatekeeper Training	Self-appraisal (no name)	Factual knowledge AND Perceived self-knowledge *(QPR)*			84	p = 0.4368			3 mos
			Factual knowledge AND Perceived self-knowledge *(QPR + roleplay)*			78				
Goldstein, 2017	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	10	p<.05	10	p<.05			6 mos

Gryglewicz et al., 2017	Suicide Risk Assessment and Management Training Pro (QPRT)	Knowledge (no name, adapted from QPR)	Factual knowledge AND Procedural knowledge	178	p < .001					
Hempel Rhudy, 2019	QPR Gatekeeper Training	Declarative Knowledge (no name)	Factual knowledge - (QPR)	83	$p < .001$	23	$p = .046$	23	$p = 0.01$	3 mos
			Factual knowledge - (QPR+ roleplay)	69	$p < .001$	28	$p = .002$	28	$p = .103$	
		QPR Gatekeeper Survey (similar to ORS)	Perceived self-knowledge (QPR)	83	$p < .001$	23	$p < .001$	23	$p = .118$	
			Perceived self-knowledge (QPR + roleplay)	69	$p < .001$	28	$p < .001$	28	$p = .218$	
Hickey, 2022	LivingWorks: Start	Change in Knowledge and Behavior (no name)	Knowledge - not specified	736	not reported					
Indelicato et al., 2011	QPR Gatekeeper Training	Knowledge and Skills (no name, adapted from QPR)	Factual knowledge AND Perceived self-knowledge AND Procedural knowledge	387	$p < .001$	247	$p < .001$			3 mos
Jacobson et al., 2012	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	35	not reported	30	$p = .01$			6 mos
		Knowledge of Institutional Resources	Factual knowledge		not reported		$p < .001$			
		Knowledge of Suicide Warning Signs and Intervention Behaviors Scale	Factual knowledge AND Procedural knowledge		not reported		$p = 0.01$			
		Risk Factors List	Factual knowledge		not reported		$p = .003$			

Author, Year	Intervention	Measure (name)	Construct	n	p	n	p			Timeframe
		Self-Evaluation of Suicide Prevention Knowledge	Perceived self-knowledge		not reported		$p = 0.016$			
Johnson & Parson, 2012	QPR Gatekeeper Training	Knowledge (no name)	Knowledge - not specified	36	$p < .001$					
Kahsay et al., 2020	SafeTALK	Gatekeeper Training Practice Issues	Procedural Knowledge			103	$p < .01$			6 mos
		Appraisals (no name)	Factual knowledge AND Perceived self-knowledge	248	$p < .001$					
Keller et al., 2009	Not reported	Perceived Knowledge (adapted from QPR's original)	Perceived self-knowledge			416	$p < .001$			6 mos
Magness et al., 2023	ASIST	Gatekeeper Training Survey (adapted from QPR, Wyman 2008)	Procedural Knowledge	434	$p < .001$	"about two-thirds", exact n not reported	$p < .001$			6-9 mos
Matthieu & Swensen, 2014	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	39	not reported					
Matthieu et al., 2008	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	602	not reported					
Mitchell et al., 2013	QPR Gatekeeper Training	none								
Mize et al., 2022	ASIST	Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	Procedural Knowledge	93	$p < .001$					
Mueller-Williams et	ASIST	Knowledge (no name)	Knowledge - not specified	404	$p < 0.05$	233	not reported			6 mos

al., 2023 (ASIST)										
Mueller-Williams et al., 2023 (SafeTALK)	SafeTALK	Knowledge (no name)	Knowledge - not specified	377	$p < 0.05$	212	not reported			6 mos
Osteen et al., 2014	QPR Gatekeeper Training	Knowledge of Institutional Resources	Factual knowledge	73	not reported					
		Risk Factors List	Factual knowledge		not reported					
		Self-Evaluation of Suicide Prevention Knowledge	Perceived self-knowledge		not reported					
Osteen et al., 2021	QPR for First Responders: LEO, EMT, and Firefighters	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-knowledge	95	$p < .001$	48	$p = .11$			
		Self-Evaluation of Suicide Prevention Knowledge	Perceived self-knowledge		$p = .007$		not reported			
Painter et al., 2018	ADAPTED QPR Gatekeeper Training	Perception (no name)	Factual knowledge	77	not reported					
Rein et al., 2018	At-Risk for College Students,At-Risk for Faculty & Staff	none								
Reis & Cornell, 2008	QPR Gatekeeper Training	Student Suicide Prevention Survey	Factual knowledge	238	$p < .001$					
Robinson-Link et al., 2020	At-Risk for Middle School Educators,At-Risk for High School Educators	none								
Samoulis et al., 2020	QPR Gatekeeper Training	Knowledge (no name)	Factual knowledge AND Procedural knowledge	161	$p < .001$					

Study	Program	Instrument	Knowledge type	N		N				Time
Shannonhouse et al., 2017 (college staff)	ASIST	Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	Procedural Knowledge	50	see note					
		Organizational Research Services (ORS)	Factual knowledge		$p < .001$					
Shannonhouse et al., 2017 (K-12)	ASIST	Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	Procedural Knowledge	104	not reported					
		Organizational Research Services (ORS)	Factual knowledge		$p < .001$					
Shannonhouse et al., 2018	ASIST	Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	Procedural Knowledge	72	$p < .001$	28	$p < .001$			3 mos
		Organizational Research Services (ORS)	Factual knowledge		$p < .001$		$p < .001$			
Smith-Millman et al., 2022	At-Risk for College Students, At-Risk for Faculty & Staff	none								
Timmons-Mitchell et al., 2019	At-Risk for Middle School Educators	none								
Tompkins et al., 2009	QPR Gatekeeper Training	General knowledge (no name, adapted from QPR)	Factual knowledge	78	$p < .001$	18	not reported			3 mos
		Intervention knowledge & likelihood to help (no name, adapted from QPR)	Factual knowledge AND Procedural knowledge		$p < .001$		not reported			
		QPR knowledge quiz (adapted from QPR)	Factual knowledge		$p < .001$		not reported			

Study	Training	Measure	Construct	N	p	N	p			Time
Tsong et al., 2019	QPR Gatekeeper Training	QPR Suicide Prevention Survey	Factual knowledge AND Procedural knowledge	477	$p < .0001$					
		Knowledge and Attitudes about Suicide (KAS)	Factual knowledge	477	composite score not reported, see note					
Witry at al., 2020	ADPATED QPR Gatekeeper Training	none								
Wood et al., 2023	QPR Gatekeeper Training	Suicide Prevention Knowledge (no name)	Perceived knowledge AND Procedural knowledge (*Educational Setting*)	747	$p < .001$					
			Perceived knowledge AND Procedural knowledge (*Religious Setting*)	698	$p < .001$					
Wyman et al., 2008	QPR Gatekeeper Training	Appraisals (no name)	Factual knowledge AND Perceived self-knowledge	122	$p < .001$	122	$p < .001$			12 mos
		Suicide Prevention Survey: Knowledge of QPR	Factual knowledge AND Procedural knowledge		$p < .001$		$p < .001$			
Yeates, 2018	At-Risk for College Students, At-Risk for Faculty & Staff	Gatekeeper Knowledge and Beliefs	Perceived self-knowledge (*students*)	224	$p < 0.05$	44	$p < 0.05$			6 mos
			Perceived self-knowledge (*faculty*)	153	$p < 0.05$	58	$p < 0.05$			
		38 units measure knowledge								

As discussed in chapters 2 and 3, researchers consistently show that improvements in suicide gatekeeper knowledge are not sufficient on their own, but rather must be accompanied by improvements in gatekeeper self-efficacy (Almeida et al., 2021; Liebling-Boccio & Jennings, 2013; Miller et al., 2013; Osteen et al., 2014; Stover et al., 2021). Simply put, knowing how to recognize suicide risk, or even knowing the appropriate procedure to approach and help someone at risk is not sufficient; a natural helper must also have the self-efficacy to take action to help a person at risk. For this reason, this content analysis included a research question regarding the improvement gatekeeper trainings make in trainee self-efficacy.

Research questions 3: To what extent do gatekeeper trainings improve trainee self-efficacy?

This section addresses the third research question, exploring the extent to which gatekeeper trainings improve the self-efficacy of participants. Recognizing that there is no universally established definition of the self-efficacy requisite for a suicide gatekeeper, nor a standardized measure for this self-efficacy, the analysis of the 48 units reveals a considerable diversity in the evaluation tools employed. Researchers observed a total of 84 measures used across all included units. Among these measures, there were 19 unique instruments used to measure self-efficacy. The researcher broke those 19 self-efficacy measures into three categories: Perceived self-efficacy, task-specific self-efficacy, and self-efficacy not specified. Table 10: *Self-efficacy frequency by provider* provides a breakdown of the frequency of each of these three categories found per each provider, as well as the number of units that did not use a self-efficacy measure. It should be noted that a unit may use more than one scale to measure self-efficacy, even the same category of self-efficacy. For a more comprehensive breakdown of self-efficacy

measures not only by provider but by training, please review Appendix K: Self-efficacy measures per training.

Table 10: *Self-efficacy frequency by provider*

Provider	Self-effectiveness - not specified		Perceived Self-efficacy		Task-specific efficacy		Did not measure self-efficacy	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	2	4.2%	1	2.1%	5	10.4%	3	6.3%
QPR	0		10	20.8%	12	25.0%	8	16.7%
Kognito	2	4.2%	5	10.4%	0		0	
Connect	0		0		0		2	4.2%
Total	4	8.3%	16	33.3%	17	35.4%	13	27.1%

Note. $N = 48$ refers to the total number of units in this content analysis.

Types of self-efficacy

There were several units ($n = 4$; 8.3%) that measured self-efficacy but did not report enough information for the researcher of this study to ascertain the appropriate category. Other units ($n = 13$; 27.1%) did not measure self-efficacy at all. For the rest of the units, the definition of self-efficacy within the scope of the units included in this study can be categorized as follows:

Perceived self-efficacy

Perceived self-effectiveness was measured by many units (*n* = 16; 33.3%). Perceived self-effectiveness measure's the trainee's confidence in their skills. This includes confidence in their ability to identify a person at risk, approach a person at risk. This may be measured with a Likert-type scale such as the Gatekeeper Self-efficacy scale and ask questions like "how confident do you feel in your ability to help someone who is contemplating suicide?"

Task-specific efficacy

Task-specific efficacy was measured by many units (*n* = 17; 35.4%). Task-specific efficacy highlighting confidence in executing specific intervention tasks. This may be measured with a Likert-type scale such as the Efficacy to Perform Gatekeeper Behaviors scale and ask questions like "How confidence do you feel in your ability to identify, approach, and refer a person at risk to help?"

Extent to which gatekeeper trainings improve trainee self-efficacy

While the diversity of evaluation tools presents challenges, the trend in self-efficacy acquisition post-training is notably positive. Self-efficacy was measured a total of 50 times across 31 units. Of those 50 times that self-efficacy was measured, 27 were reported at pre-post (54%) and 16 were reported pre-test to follow-up (32%). The pre-post and pre-follow up p-values indicate the impact of training over time. Simply put, the pre-post p-value indicates how much the training changed the item being measured, or how much did the training improve self-efficacy.

Because the research question for this study is focused on the extent to which gatekeeper trainings improve trainee self-efficacy, The researcher evaluated the frequency of various p-values across self-efficacy measures at pre-post. Of the 27 total pre-post self-efficacy measures recorded ($n = 5$; 18.5%) reported $p < .05$; ($n = 2$; 7.4%) reported $p < .01$; ($n = 17$; 63%) reported $p < .001$; ($n = 2$; 7.4%) reported $p < .0001$. This indicates that the majority of the gatekeeper trainings evaluated in this content analysis show a statistically significant improvement in trainee self-efficacy. For a more comprehensive breakdown of self-efficacy measure p-values, please review Table 11: *Self-efficacy p-values by training.*

Table 11: *Self-efficacy p-values by training*

Unit	Specific Training	Knowledge measure used in unit	Type of knowledge measured	Pre-Post		Pre-Follow up		Post-Follow up		Follow up time frame
				n	*p*-value	*n*	*p*-value	*n*	*p*-value	
Adams et al., 2018	QPR Gatekeeper Training	Beliefs and Attitudes (no name, adapted from QPR)	Task-specific efficacy			41	not reported			6 mos
						15	not reported			9 mos
Aldrich et al., 2018	QPR Gatekeeper Training	Willingness to Intervene against Suicide questionnaire (WIS) also referred to as the Theory of Planned Behavior (TPB) measures	Task-specific efficacy	79	$p < .001$					
Bean & Baber, 2011 (Adults)	Connect Gatekeeper Training	none								
Bean & Baber, 2011 (Youth)	Connect Gatekeeper Training	none								
Bell, 2015	QPR Gatekeeper Training	Pre-test and Follow-up survey (no name, developed by the QPR Institute)	Task-specific efficacy	413	$p < .001$	413	$p < .001$			3 mos

Bradley & Kendall, 2019	At-Risk for Middle School Educators	Gatekeeper Behavior Scale (GBS)	Perceived self-efficacy	20	$p=.002$					
Cascamo Jr., 2013	QPR Gatekeeper Training	none								
Cerel et al., 2012	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	3958	$p < .001$					
Coleman et al., 2019	At-Risk for College Students	Gatekeeper efficacy (no name)	Self-efficacy - not specified	33	$p < .01$	24	$p < .05$			2 mos
Cross et al., 2007	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	76	$p < .0001$					
Davis, 2019	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	none								
Duong-Killer, 2015	QPR Gatekeeper Training	none								
Ewell Foster et al., 2017	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Gatekeeper Efficacy and Gatekeeper Reluctance	Task-specific efficacy	434	$p < .001$	285	$p < .001$			6 mos
Godoy Garraza et al., 2021	MODIFIED (QPR vs QPR+ role play) QPR Gatekeeper Training	Self-appraisal (no name)	Task-specific efficacy *(QPR)*			84	$p = 0.0029$			3 mos
			Task-specific efficacy*(QPR + roleplay)*			78				
Goldstein, 2017	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	10	$p<.05$	10	$p<.05$			6 mos

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Author	Training	Measure	Efficacy Type	n	p	n	p	n	p	Follow-up
Gryglewicz et al., 2017	Suicide Risk Assessment and Management Training Pro (QPRT)	Willingness to Intervene against Suicide questionnaire (WIS) also referred to as the Theory of Planned Behavior (TPB) measures	Task-specific efficacy	178	*p* < .001					
Hempel Rhudy, 2019	QPR Gatekeeper Training	QPR Gatekeeper Survey (similar to ORS)	*Perceived self-efficacy (QPR)*	83	*p* < .001	23	*p* < .001	23	*p* = .118	3 mos
			Perceived self-efficacy *(QPR + roleplay)*	69	*p* < .001	28	*p* < .001	28	*p* = .218	
Hickey, 2022	LivingWorks: Start	none								
Indelicato et al., 2011	QPR Gatekeeper Training	none								
Jacobson et al., 2012	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	35	not reported	30	*p* = .01			6 mos
		Gatekeeper Efficacy and Gatekeeper Reluctance	Task-specific efficacy	35	not reported	30	*p* = .002			6 mos
Johnson & Parson, 2012	QPR Gatekeeper Training	none								
Kahsay et al., 2020	LivingWorks: Suicide Alertness for Everyone (SafeTALK)	Appraisals (no name)	Task-specific efficacy	277	*p* < .001					
Keller et al., 2009	Not reported	none								
Magness et al., 2023	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Beliefs (no name)	Perceived self-efficacy	434	*p* < .001					
Matthieu & Swensen, 2014	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called	Perceived self-efficacy	39	*p* < .001					

		Gatekeeper Training Evaluation								
Matthieu et al., 2008	QPR Gatekeeper Training	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	602	$p < .001$					
Mitchell et al., 2013	QPR Gatekeeper Training	none								
Mize et al., 2022	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	none								
Mueller-Williams et al., 2023 (ASIST)	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Composite Behavior (no name)	Self-efficacy - not specified	404	$p < .05$	233	not reported			6 mos
Mueller-Williams et al., 2023 (SafeTALK)	LivingWorks: Suicide Alertness for Everyone (SafeTALK)	Composite Behavior (no name)	Self-efficacy - not specified	377	$p < .05$	212	not reported			6 mos
Osteen et al., 2014	QPR Gatekeeper Training	Gatekeeper Efficacy and Gatekeeper Reluctance	Task-specific efficacy	73	not reported					
Osteen et al., 2021	QPR for First Responders: LEO, EMT, and Firefighters	Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived self-efficacy	95	$p < 0.001$	48	$p = .11$			3 mos
Painter et al., 2018	ADAPTED QPR Gatekeeper Training	Perception (no name)	Task-specific efficacy	77	not reported					
Rein et al., 2018	At-Risk for College Students, At-Risk for Faculty & Staff	Gatekeeper Behavior Scale (GBS)	Perceived self-efficacy	2,727	$p < 0.001$					

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Reis & Cornell, 2008	QPR Gatekeeper Training	none								
Robinson-Link et al., 2020	At-Risk for Middle School Educators, At-Risk for High School Educators	Gatekeeper Behavior Scale (GBS)	Perceived self-efficacy	3807	$p = .133$	781	not reported			
Samoulis et al., 2020	QPR Gatekeeper Training	Self-efficacy (no name)	Perceived self-efficacy	161	$p < .001$					
Shannonhouse et al., 2017	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	none								
Shannonhouse et al., 2017	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	none								
Shannonhouse et al., 2018	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	none								
Smith-Millman et al., 2022	At-Risk for College Students, At-Risk for Faculty & Staff	Gatekeeper Behavior Scale (GBS)	Perceived self-efficacy			310	$p < .05$			3 mos
Timmons-Mitchell et al., 2019	At-Risk for Middle School Educators	Gatekeeper Behavior Scale (GBS)	Perceived self-efficacy	33,704	$p < .001$	3839	$p < .05$			3 mos
Tompkins et al., 2009	QPR Gatekeeper Training	Self-efficacy (no name, adapted from QPR)	Perceived self-efficacy	78	$p < .001$	18	not reported			3 mos
Tsong et al., 2019	QPR Gatekeeper Training	none								
Witry at al., 2020	ADPATED QPR Gatekeeper Training	Confidence scale (no name, adapted from QPR evaluations)	Perceived self-efficacy	111	$p < 0.01$					
Wood et al., 2023	QPR Gatekeeper Training	none								

Wyman et al., 2008	QPR Gatekeeper Training	Appraisals (no name)	Task-specific efficacy	122	$p < .0001$	122	$p < .0001$			12 mos
Yeates, 2018	At-Risk for College Students, At-Risk for Faculty & Staff	Gatekeeper Self-Efficacy (adapted)	Self-efficacy - not specified (*students*)	224	$p < 0.05$	44	$p < 0.05$			6 mos
			Self-efficacy - not specified (*faculty*)	153	$p < 0.05$	58	$p < 0.05$			
		31 units measure self-efficacy								

Research questions 4: What are the various components of gatekeeper trainings?

For the 48 units in this study, there was an uneven distribution of units per gatekeeper training provider (see Table 12), modality per gatekeeper training provider (see Table 13), duration per gatekeeper training provider (see Table 14), and reporting on educational components per gatekeeper training provider (see Table 15). These are discussed in further detail below.

Table 12: *Frequency of units and trainings per provider*

Provider	Units N (% of 48 units)	Trainings N (% of 52 trainings)
LivingWorks	11	11
QPR	28	28
Kognito	7	11
Connect	2	2
TOTAL	48	52

Table 13: *Frequency of trainings and modalities per provider*

Provider	In-person		Online asynchronous		Hybrid		Not reported	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48

LivingWorks	10	20.80%	1	2.10%	0		0	
QPR	19	39.60%	3	6.30%	1	2.10%	5	10.40%
Kognito	0		8	16.70%	0		0	
Connect								
Total	29	60.40%	12	25.00%	1	2.10%	5	10.40%

Note. N = 48 refers to the total number of units in this content analysis.

Table 14: *Frequency of units that reported duration per provider*

Provider	1-1.5 hrs		2-3 hrs		4-5 hrs		8-12 hrs		14-16 hrs or 2 days		Not reported	
	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*
LivingWorks	1	2.00%	0		2	4.10%	0		8	16.30%	0	
QPR	16	32.70%	6	12.20%	1	2.00%	1	2.00%	0		4	8.20%
Kognito	3	6.10%	0		0		0		0		4	8.20%
Connect			2	4.10%								
Total	20	40.80%	8	16.30%	3	6.10%	1	2.00%	8	16.30%	8	16.30%

Note. N = 48 refers to the total number of units in this content analysis.

Table 15: *Frequency of units that reported educational components and adaptations per provider*

Provider	Virtual simulation role play		Live role play		PPT or lecture (live or audio/ visual pre-recorded)		Discussion / Q&A		Audio/ Video (not lecture)		Not reported		other	
	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*	#	*N = 48*
LivingWorks	1	2.10%	6	12.50%	1	2.10%	1	2.10%	3	6.30%	4	8.30%	3	6.30%
QPR	0		8	16.70%	8	16.70%	5	10.40%	5	10.40%	17	35.40%	4	8.30%
Kognito	6	12.50%	0		0		0		0		2	4.20%	0	
Connect			2	4.20%	2	4.20%							2	4.20%
Total	7	14.60%	16	33.30%	11	22.90%	6	12.50%	8	16.70%	23	47.90%	9	18.80%

Note. N = 48 refers to the total number of units in this content analysis.

There is also a lack of consistency in how trainings details are reported, specifically units (*n* =26; 54.2%) that identified or offered descriptions of any educational components compared with the units (*n* =22; 45.8%) that did not identify or report any detail about educational components. For the purpose of this content analysis, educational components are defined as the educational method by which a trainee learns, for example, a slide presentation describing facts about suicide risk factors, or a video depicting a scenario of a person at risk, or a role play exercise. An important distinction is that a training component must be identified not for what it is designed to teach (e.g., understanding facts about suicide risk factors) but rather *the tool* being used to teach (e.g., a slide presentation or pre-recorded lecture).

There is also a lack of consistency in how trainings are implemented. Of the 48 units, several units (*n* = 10; 20.8%) reported making at least some modification or adaptations to the training, those descriptions vary in detail. Below, the researcher describes various gatekeeper trainings evaluated in this content analysis. Each section is grouped by the gatekeeper training provider (LivingWorks, QPR, Kognito, and Connect) with subsections describing each of the respective trainings evaluated by the units in this content analysis. Those subsections will include details regarding training modality, duration, and various components and adapted components including descriptions when available.

LivingWorks

Of the 48 units included in this content analysis, many units (*n* =11; 22.9%) evaluated trainings from LivingWorks. Of those 11 units (*n* = 7; 63.6%) evaluated the Applied Suicide Intervention Skills Training (ASIST); another unit (*n* = 1; 9.1%) evaluated an adapted version of the Applied Suicide Intervention Skills Training (ASIST; Mize et al., 2022); Another unit (*n* = 1;

9.1%) evaluated LivingWorks: Start (Hickey, 2022); and a couple units ($n = 2$; 18.2%) evaluated Suicide Alertness for Everyone (SafeTALK; Kahsay et al., 2020; Mueller-Williams et al, 2023). The sections below will offer details about each of these various types of trainings including the modality, duration, components, and any adaptations.

LivingWorks Start

Of the 48 units in this content analysis, one unit ($n = 1$; 9.1%) evaluated LivingWorks: Start (Hickey, 2022). This training was reported as being conducted in an online asynchronous format. Hickey (2022) reported that the duration of the LivingWorks: Start was one hour. The reported components for this training included the virtual simulation of a text conversation with a person at risk as well as an audio recording and replay component. Hickey does not offer any additional information about any components for this training.

Suicide Alertness for Everyone (SafeTALK)

Of the 48 units in this content analysis, a couple units ($n = 2$; 18.2%) evaluated Suicide Alertness for Everyone (SafeTALK). Of those two units, 100% ($n = 2$) reported the trainings being conducted in person. Both trainings also reported the duration as four hours. Both units also failed to identify or reported any details about a single component of the SafeTALK training.

Applied Suicide Intervention Skills Training (ASIST)

Modality and duration

Of the 48 units in this content analysis, many units (*n* = 8; 16.7%) evaluated Applied Suicide Intervention Skills Training (ASIST). Of those units (*n* = 8; 100%) reported the trainings being conducted in person. For duration of the trainings, a few units (*n* = 3; 37.5%) reported the training lasted 14 hours (Mize et al., 2022; Shannonhouse et al., 2017a, Shannonhouse et al., 2018); a couple units (*n* = 2; 25%) reported the training lasted 16 hours (Ewell Foster et al., 2017; Magness et al., 2023); and a few units (*n* = 3; 37.5%) reported the training lasted two days (Mueller-Williams et al., 2023a; Shannonhouse et al., 2017b)

Components

Of the eight units evaluating Applied Suicide Intervention Skills Training (ASIST), a couple units (*n* = 2; 25%) failed to report any specifics about the components (Davis, 2019; Mueller-Williams et al., 2023a). The remaining units (*n* = 6; 75%) that did report specific training components did not report consistently. Please refer to Table 16 below for details about frequency of reporting educational component details. Ewell Foster et al. (2017) reported that the training components for their ASIST training included "interactive role-plays…[and] exercises to promote connection and understanding of the suicidal individual" (p. 299) They did not specify what those exercises were, nor did they offer an any additional details for the components. Magness et al. (2023) reported that the training components for their ASIST training included role plays but did not offer any detail or explanation of any other components. In several of the units (*n* = 3; 37.5%)

specifically (Shannonhouse et al., 2017a; Shannonhouse et al., 2017b; and Shannonhouse et al., 2018) reported a very detailed description of what the ASIST training is intended to do and the theoretical underpinnings of the training, but only identifies a few of the training components, namely role plays and cocreating plans to stay safe-for-now. Mize et al. (2022) reported that they adapted the ASIST training. Specifically, they noted,

"While adhering to the standardized content, this training was tailored to volunteers and staff of the ASN in three ways. First, we used a prior audio visual of a case simulation of an older adult at risk of suicide (ASIST 11.0). Second, we augmented role-play practice simulations to allow participants to use the intervention model in the context of what it would be like to interact with an older adult receiving a home-delivered meal. Finally, we facilitated debriefing conversations after each role-play simulation to allow volunteers and staff to process the application of this intervention in the context of HDM. After each ASIST training, the trainers provided a detailed report on their adherence to the training modules and standardized procedure to the ASIST developer, LivingWorks, for ongoing quality assurance" (p. 277)."

The authors did not provide further detail about how the components were adapted.

Table 16: *LivingWorks educational components by training*

Living Works	Virtual simulation role play			Live role play			PPT or lecture (live or audio/visual pre-recorded)			Discussion / Q&A			Audio/Video (not lecture)			Not reported			other		
	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 49	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11
Start	1	2.1%	9.1%										1	2.1%	9.1%						
SafeTALK																2	4.2%	18.2%			
ASIST				6	12.5%	54.5%	1	2.1%	9.1%	1	2.1%	9.1%	2	4.2%	18.2%	2	4.2%	18.2%	3	6.3%	27.3%
Total	1	2.1%	9.1%	6	12.5%	54.5%	1	2.1%	9.1%	1	2.1%	9.1%	3	6.3%	27.3%	4	8.3%	36.4%	3	6.3%	27.3%

N = 48 refers to the total number of units in this content analysis.

n = 11 refers to the number of units for LivingWorks in this content analysis.

Question. Persuade. Refer.

Of the 48 units included in this content analysis, the vast majority ($n = 28$; 58.3%) evaluated trainings from QPR. Of those 28, ($n = 17$; 60.7%) evaluated the standard QPR Gatekeeper Training; ($n = 9$; 32.1%) evaluated an adapted version of the standard QPR Gatekeeper Training; ($n = 1$; 3.6%) evaluated QPR for First Responders - LEO, EMT, and Firefighters (Osteen et al., 2021); and ($n = 1$; 3.6%) evaluated Suicide Risk Assessment and Management Training Pro (QPRT; Gryglewicz et al., 2017).The sections below will offer details about each of these various types of trainings including the modality, duration, components, and any adaptations.

QPR Gatekeeper Training

Modality and duration

Of those 17 units, ($n = 10$; 58.8%) reported the trainings being conducted in person; ($n = 1$; 5.9%) reported the trainings being conducted in an online asynchronous format (Wyman et al., 2008); ($n = 1$; 5.9%) reported the trainings being conducted in a hybrid format (Matthieu & Swensen, 2014); and ($n = 5$; 29.4%) did not reported the modality of the training. Sixteen of the 17 (94.1%) units reported that the QPR training was completed in 1-3 hours. One unit ($n = 1$; 5.9%) did not report training duration (Osteen et al., 2021).

Components

Of the 17 units evaluating the standard QPR Gatekeeper Training, (n = 14; 82.4%) failed to report any specific training component. The units (n = 3; 17.6%) that did report specific training components did not report consistently. Matthieu & Swensen (2014) reported that the training components for their 90-minute, hybrid training included "a lecture, 10-minute video, a question-and-answer period, referral cards, and concludes with a behavioral rehearsal component" (p. 99). Aldrich et al. (2018) reported that the training components for their 90-minute training, of which they did not reported the modality, included "a PowerPoint presentation, videos, discussions and a question-and-answer period" (p. 969). Bell (2015) reported that the training components for their 1-hour, in person training included "a nine-minute orientation video… [and] the QPR booklet which reviews the training and includes the background risk and protective factor information" (p. 41-42). No other details were provided for other components.

Adapted QPR Gatekeeper Training

Modality and duration

Of the 48 units included in this content analysis, (N = 9; 18.8%) evaluated adapted QPR Gatekeeper Trainings. Of those nine units, (n = 8; 88.9%) reported the trainings being conducted in person and 11.1% (n = 1; 11.1%) did not reported the modality of the training. No units reported that an adapted QPR Gatekeeper Trainings was conducted in an online or hybrid modality.

Components

Of the nine units evaluating the adapted QPR Gatekeeper Trainings, (n = 1; 11.1%) failed to report any specifics about the adapted components (Wood et al., 2023). Of the nine units evaluating the adapted QPR Gatekeeper Trainings, 55.6% (n = 5) reported that the only adaptation was the addition of a role-play component after training. Of the nine units evaluating the adapted QPR Gatekeeper Trainings, (n = 1; 11.1%) failed to report any specifics about the adapted components (Keller et al., 2009). Keller and team (2009) were tasked with implementing a suicide gatekeeper training for the Tennessee Lives Count (TLC) program directed at youth suicide prevention. They noted that the

> "central feature of TLC is its gatekeeper training based on Question,
>
> Persuade, Refer (QPR; Quinnett, 1995). This model was chosen because of its
>
> brevity, applicability to the chosen target groups, and demonstrated ability to
>
> produce measurable impact (Cross et al., 2007; Wyman et al., 2008) … The
>
> project enhanced the training by consulting with several leading suicide
>
> prevention experts. As a result, lethality assessment, attitude awareness, and
>
> information related to cultural factors were incorporated" (p. 128).

The researchers did not elaborate on how these enhancements were implemented or what components were added or adapted.

Of the nine units evaluating the adapted QPR Gatekeeper Trainings, (n = 2; 22.2%) reported adaptations included the addition of both a role-play component after the training as well as other additional adaptations (Godoy Garraza et al., 2021; Witry at al., 2020). Notably, both trainings were targeted specifically at pharmacy students. Godoy Garraza et al. (2021) reported

the adapted training components for their 90-minute, in-person training included a 30-minute role play details:

> "After the standard training presentation, participants observed a brief role-play
>
> by the trainers who discussed and demonstrated 'wrong way/right way'
>
> interactions between a caring adult and suicidal student. Participants were then
>
> divided into groups of three for roleplay practice. Each group was given three
>
> scenarios, back stories for the suicidal student and adult gatekeeper roles, and
>
> instructions for an observer role. Participants were instructed to rotate through
>
> the roles over the course of three role-play opportunities" (p. 361).

The researchers also noted that they made moderate changes to the QPR training material to specifically fit the needs of pharmacy students but did not give specific reports on what those additional adaptations were. Witry et al. (2020) reported that the adapted training components for their 2-hour, in-person training included an educational three weeks before the training session as well as a role-play component immediately following the training. Specifically, they noted the educational session as a 60-minute classroom discussion and lecture led by an expert from the Department of Veterans Affairs (VA) and "the facilitator used a slide deck to provide information on suicide statistics, misconceptions, principles, and introduce the SAVE program used by the Veterans Affairs (King et al., 2012). This involved a discussion of warning signs, protective factors, and local and national referrals. A case was used for discussion. Following the presentation on suicide prevention, the facilitator discussed counseling for antidepressant medications. Students were provided the case, the VA suicide prevention pocket card and risk assessment, and antidepressant counseling recommendations through the course management website as resources." (p. 2). Witry and colleagues then noted that the role-play component was

implemented immediately following the QPR training but did not reported any details about the role play.

Other QPR trainings

Of the 48 units in this content analysis, ($n = 1$; 2.1%) evaluated the QPR for First Responders - LEO, EMT, and Firefighters training (Osteen et al., 2021), and 2% ($n = 1$; 2.1%) evaluated the Suicide Risk Assessment and Management Training Pro (QPRT; Gryglewicz et al., 2017) which is designed especially for mental health professionals.

Modality and duration

Both units reported that the trainings were conducted in an online asynchronous format. Osteen et al. (2021) reported that duration of the QPR for First Responders - LEO, EMT, and Firefighters training was 4-5 hours. Gryglewicz et al. (2017) reported that duration of the Suicide Risk Assessment and Management Training Pro (QPRT) training was 8-12 hours and completed over the course of two week on average.

Components

Osteen et al. (2021) reported that the QPR for First Responders - LEO, EMT, and Firefighters training "consists of the online basic QPR training certificate program adapted for LEO, followed by an advanced certificate program for LEO and other emergency personnel" (p.

787). They did not give details on what the advanced training entails or any of the components therein. Gryglewicz et al. (2017) reported briefly but specifically on the individual components included in the Risk Assessment and Management Training Pro (QPRT). They noted that "The online training format includes video lectures, audio files, clinical illustrations, and interactive practice challenges and quizzes" (p. 187). Please refer to Table 17 below for details about frequency of reporting educational component details.

Table 17: *QPR educational components by training*

QPR	Virtual simulation role play			Live role play			PPT or lecture (live or audio/visual pre-recorded)			Discussion / Q&A			Audio/Video (not lecture)			Not reported			other		
	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28
Standard QPR Gatekeeper Training				1	2.1%	3.6%	2	4.2%	7.1%	2	4.2%	7.1%	3	6.3%	10.7%	14	29.2%	50.0%	1	2.1%	3.6%
Adapted QPR Gatekeeper Training				7	14.6%	25.0%	5	10.4%	17.9%	3	6.3%	10.7%	1	2.1%	3.6%				2	4.2%	7.1%
Adapted QPR training not specified																2	4.2%	7.1%			
QPR for First Responders																1	2.1%	3.6%			
QPRT							1	2.1%	3.6%				1	2.1%	3.6%				1	2.1%	3.6%
Total	0			8	16.7%	28.6%	8	16.7%	28.6%	5	10.4%	17.9%	5	10.4%	17.9%	17	35.4%	60.7%	4	8.3%	14.3%

N = 48 refers to the total number of units in this content analysis.
n = 28 refers to the number of units for QPR in this content analysis.

Kognito

Of the 48 units included in this content analysis, ($N = 7$; 14.6%) evaluated trainings from Kognito. Some of the seven units evaluated more than one training. Because demographic data and results were reported collectively, it was impossible for the researcher to separate the trainings, and therefore, thought 11 Kognito trainings were conducted, only seven units are being evaluated. Of those seven units, ($n = 1$; 14.3%) evaluated the At-Risk for College Students only (Coleman et al., 2019); ($n = 3$; 42.9%) evaluated both At-Risk for College Students and At-Risk for Faculty & Staff (Rein et al., 2018; Smith-Millman et al., 2022; Yeates, 2018); ($n = 2$; 28.6%) evaluated At-Risk for Middle School Educators only (Bradley & Kendall, 2019; Timmons-Mitchell et al., 2019); and ($n = 1$; 14.3%) evaluated both At-Risk for Middle School Educators and At-Risk for High School Educators (Robinson-Link et al., 2020). The sections below will offer details about each of these various types of trainings including the modality, duration, components, and any adaptations.

Of the 48 units in this content analysis, ($n = 3$; 42.9%) evaluated At-Risk for Faculty & Staff (Rein et al., 2018; Smith-Millman et al., 2022; Yeates, 2018); ($n = 4$; 57.1%) evaluated At-Risk for College Students (Coleman et al., 2019; Rein et al., 2018; Smith-Millman et al., 2022; Yeates, 2018); ($n = 1$; 14.3%) evaluated At-Risk for High School Educators (Robinson-Link et al., 2020); and ($n = 3$; 42.9%)) evaluated At-Risk for Middle School Educators (Bradley & Kendall, 2019; Robinson-Link et al., 2020; Timmons-Mitchell et al., 2019).

Modality and duration

All seven units that evaluated Kognito trainings (*n* = 7; 100%) reported the trainings being conducted in an online asynchronous format. Of the seven units, (*n* = 4, 57.1%) did not report any information on duration of the training; (*n* = 1; 14.3%) reported the duration of the training was 45-60 minutes (Smith-Millman et al., 2022); 12.5% (*n* = 1) reported the duration of the training was 45-90 minutes (Timmons-Mitchell et al., 2019); and (*n* = 1; 14.3%) reported the duration of the training was 45-90 minutes (Robinson-Link et al., 2020).

Components

Of the seven units evaluating the Kognito trainings, (*n* = 1; 14.3%) failed to report any specifics about the adapted components (Yeates, 2018). Another several units (*n* = 4, 57.1%) gave descriptions of the goals of the training, and only identified a single component, the central component in Kognito, which is the virtual simulation role play. The (*n* = 1; 14.3%) that did report more specific details (Robinson-Link et al., 2020) identified the following components: Presentation of facts including risk factors and warning signs by the simulated coach "Jackie", as well as an explanation of intervention method (identify, approach, refer). Virtual role plays to practice the method, and coaching from virtual guide until trainee has effectively referred the virtual person at risk to help (p. 242). Please refer to Table 18 below for details about frequency of reporting educational component details.

Table 18: *Kognito educational components by training*

Kognito	Virtual simulation role play			Live role play			PPT or lecture (live or audio/visual pre-recorded)			Discussion / Q&A			Audio/Video (not lecture)			Not reported			other		
	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7
At-Risk for College Students	1	2.1%	14.3%																		
At-Risk for College Students AND At-Risk for Faculty & Staff	2	4.2%	28.6%													2	4.2%	28.6%			
At-Risk for Middle School Educators	2	4.2%	28.6%																		
At-Risk for Middle School Educators AND At-Risk for High School Educators	1	2.1%	14.3%																		
Total	6	12.5%	85.7%	0			0			0			0			2	4.2%	28.6%	0		

$N = 48$ refers to the total number of units in this content analysis.

$n = 7$ refers to the number of units for Kognito in this content analysis.

Connect

Of the 48 units included in this content analysis, ($N = 2$; 4.1%) evaluated trainings from

Connect (Bean & Baber, 2001a; 2001b). The two units came from a single journal article which

reported on the Connect training implemented with two distinct and very large populations, one

for youth and one for adults. Because all reported details on results was separated for the two

populations, this content analysis is analyzing them as two separate units. Bean & Baber (2001)

did not report the modality of the training. It is unclear whether the Connect trainings were

conducted in person, online, or otherwise. Both units did however report that the training duration

was three hours. Bean & Baber (2001) reported the that the components consisted of "PowerPoint

presentations, role plays, and a variety of interactive activities" (p. 89). They offer a great deal of

information about the theoretical underpinnings of the Connect program, but do not go into any

further detail regarding the components of the training.

Summary of Results

The results synthesized in this chapter highlight a unifying theme across the spectrum of

gatekeeper trainings: they are effective in enhancing knowledge and self-efficacy. This

effectiveness transcends professional boundaries and is consistent across varied training types.

The studies, despite employing a wide array of designs, measures, and reporting standards,

collectively corroborate an upward trend in the competencies they seek to improve. A notable

finding is the increase in trainee knowledge, with trainings effectively conveying essential

information about suicide prevention, risk factors, and intervention strategies. This educational

impact is resilient, with follow-up assessments indicating that the acquired knowledge tends to be

retained over time. Equally important is the boost in self-efficacy among trainees, encompassing their confidence in skills, perceived effectiveness of interventions, and task-specific efficacy. The enduring nature of this enhanced self-efficacy speaks to the trainings' ability to empower individuals not only with knowledge but also with the confidence to apply this knowledge in critical situations. The analysis has revealed that despite the great diversity in training modalities—from in-person workshops to online simulations—and durations, the core objectives of these programs are met. The trainings are tailored to various audiences, including educators, healthcare professionals, and first responders, each with content suited to the unique challenges these groups may face.

Chapter 5

Discussion

This chapter begins with a discussion of the results pertaining to each research question in the content analysis that focuses on gatekeeper trainee demographics, knowledge and self-efficacy, and training components. Each of the discussions includes interpretations and relationship to previous research. These discussions are followed by a limitations section. Finally, the researcher offers implications and directions for future research.

Trainee demographics

The first research question considered the details regarding the identities and demographics of the natural helpers who receive gatekeeper training. The results indicate some inconsistencies broadly on the demographic characteristics of natural helpers in terms of the predominant sex, racial, and ethnic identities of trainees. These inconsistencies identified in this content analysis are consistent with previous literature, as detailed below.

A significant finding of disparity among natural helpers receiving gatekeeper training included predominant sex. The content analysis revealed a disproportionate representation of female natural helpers among the sample of gatekeeper training. It is important to note that natural helpers tend to be from helping professions, which are largely female dominated fields. According to the U.S. Bureau of Labor and Statistics (BLS), nearly 70% of the those employed in

community and social service occupations, including education, mental health, social work, and religious or faith-based roles are women (U.S. Bureau of Labor and Statistics, 2024). The BLS also noted that medical professions such as nursing are over 80% women (U.S. Bureau of Labor and Statistics, 2024). The current project revealed that gatekeeper training research failed to provide granular gender data, often relying on a gender binary without recognizing the spectrum of gender identities. Researchers have noted that this binary approach to data collection does not reflect the complexity of gender and can lead to harmful misrepresentations, perpetuating a lack of inclusivity in suicide prevention efforts (Bauer et al., 2017; Cameron & Stinson, 2019; Hyde et al., 2018). Specifically, Bauer and colleagues (2017) indicated that requiring participants to select between binary sex or gender in demographic data will actually weaken the data and risk reliability. Cameron and Stinson (2019) noted that in such adherence to a binary representation of gender is not only inaccurate scientific data but goes directly against the codes of ethics in psychological research. Similarly, researchers (Hyde et al., 2018) reported that requiring study participants to follow a gender binary for demographic data can be compared to forcing someone to misgender themselves or even deny their own identity.

Researchers have consistently discussed that behavioral and mental health professionals often lack the necessary skills and comfort to effectively serve LGBTQ individuals, which exacerbates the feelings of alienation among LGBTQ individuals particularly those who identify as trans and gender diverse (TGD) when they seek healthcare services (Eliason, 2000; Logie et al., 2007; McGeorge et al., 2015; Williams & Fish, 2020). This is a point of concern for suicide gatekeepers who provide critical, life-saving interventions to people at risk including TGD individuals. Failure to appropriately train and equip gatekeepers with the skills to support TGD persons is a direct disservice to the TGD population. If suicide gatekeeper researchers adjust data collection practices to expand demographics beyond a gender binary, this could help lead to more

accurate results, which could lead to more informed and nuanced gatekeeper training development in the future. Such efforts could help better equip and prepare gatekeepers to work effectively with TGD persons.

In the content analysis, race and ethnicity data also revealed a concerning homogeneity with an overrepresentation of white individuals among gatekeeper trainees, while significantly fewer units represented trainee samples that were predominately minoritized racial or ethnic groups ($n = 5$; 10.4%). This finding is consistent with the literature that most people trained in suicide gatekeeping identify as white (Cerdeña et al., 2022; Ramchand & Roth, 2014; Teo et al., 2016).

One of the units included in this study was an evaluation of the effectiveness of SafeTALK and ASIST trainings that was part of an American Indian/Alaska Native (AIAN) youth suicide prevention program (Mueller-Williams et al., 2023). Though the project specifically sought to train those who support AI/AN youth, and though the trainings were intentionally provided on and around tribal settings, over 50% of the trainees were white, and only 20% (ASIST) and 22% (SafeTALK) identified as AI/AN (Mueller-Williams et al., 2023). The researchers noted that though there was an AI/AN leader in each training because they were not all established members of the local community, there may have been losses in the amount of knowledge and skills retained and implemented in the community (Mueller-Williams et al., 2023).

Failure to train members of the group identified as needing suicide gatekeepers may prevent those at risk from receiving gatekeeper interventions. The literature consistently highlights the danger of failing to train a diverse population of suicide gatekeepers and how this can negatively impact the mental health of racially and ethnically minoritized folks (Perez-Rodriguez et al., 2008; Polanco-Roman & Miranda, 2022; Ramchand & Roth, 2014; Teo et al.,

2016). Ramchand and Roth (2014) proposed a framework for addressing structural racism within the field of suicide prevention for racially and ethnically minoritized youth. The researchers specified that part of the solution must be appropriate cultural humility and anti-racist practices for suicide gatekeeper trainings, as well as intentional allocation of funding and materials for gatekeeper trainings to occur within the minoritized communities (Ramchand & Roth, 2014). Teo and team (2016) noted that some racial and ethnic groups are more likely to seek help from friends and family rather than from mental health professionals, highlighting the need to train gatekeepers who share identities with at-risk populations.

This content analysis found a large conflation of race and ethnicity among the units, with many reporting them as a single demographic factor, while others only reported on race and ignored ethnicity altogether. The literature notes the dangers of frequent conflation of race and ethnicity in research (Cerdeña et al., 2022). Cerdeña and team (2022) highlighted that conflating racial and ethnic identities in research lends itself to upholding white supremacist values, specifically this conflation can falsely imply a genomic supremacy. The literature also supported another finding of this content analysis, that there is often a large group labeled "white" and sometimes a group labeled "other" or "multiracial" which obscures the distinct experiences and identities of trainees. One such study (Shanawani et al., 2006) found that classification of study participants with rigid (white) or dismissive (other) categories can cause harm in the form of producing inaccurate and therefore not replicable results.

Finally, the content analysis considered the professional identifies of gatekeeper trainees. Results indicated that the professional sectors of trainees were predominantly educational. The emphasis on K-12 ($n = 18$; 37.5%) and university ($n = 22$; 52.1%) settings in suicide gatekeeper training studies may stem from the recognition that educational institutions are pivotal environments for early intervention (Auerbach & Miller, 2018; Ayer & Colpe, 2023; Fernández

Rodríguez & Huertas, 2013). Students in these age groups are undergoing significant life transitions, which can precipitate stress and increase vulnerability to mental health issues, including suicidal ideation (Auerbach & Miller, 2018; Ayer & Colpe, 2023). Educational settings provide a strategic platform to implement gatekeeper trainings due to the regular and structured contact educators have with young people, which enables early detection and support for those at risk. These institutions often have the infrastructure to support widespread training initiatives and can integrate these into existing health and wellbeing programs, thereby reinforcing a culture of awareness and prevention (Fernández Rodríguez & Huertas, 2013). This focus aligns with the preventive approach necessary to address the mental health crisis and illustrates a proactive stance in safeguarding youth well-being (Auerbach & Miller, 2018; Ayer & Colpe, 2023; Fernández Rodríguez & Huertas, 2013).

Knowledge and self-efficacy

A key element of the current content analysis was garnering to what extent natural helpers improve their knowledge and self-efficacy as a result of gatekeeper training, as guided by research questions two and three. Similar to previous analyses of gatekeeper trainings (Kuntz, 2019; Mo et al., 2018; Yonemoto et al., 2019), the results of the current study indicated an overall improvement of trainee knowledge and self-efficacy after training. The new additive knowledge from the current content analysis is a more nuanced understanding of the inconsistencies in how the constructs of knowledge and self-efficacy are measured across gatekeeper providers. For example, types of knowledge identified in this content analysis included factual, perceived, or procedural and types of self-efficacy included either perceived self-efficacy or task-specific

efficacy. These categories of knowledge and self-efficacy vary slightly from the categories of outcomes determined by Kuntz (2019). Though the researcher for this content analysis adapted the a priori codebook from Kuntz (2019), this study evaluated gatekeeper trainings across age and sector, while Kuntz focused exclusively on gatekeeper trainings provided on college campuses and did not limit her outcomes of interest to knowledge and self-efficacy.

While some units included in this content analysis employed multiple measures, they homogeneously assessed the same knowledge category. For instance, Davis (2019) utilized two measures (SIRI-2 and an unnamed measure for post-intervention scenarios), both of which gauged procedural knowledge. The lack of different types of knowledge measures results in an inconsistent body of research, undermining the comparability of studies and the overall integrity of findings within the field of suicide gatekeeper research. Despite these methodological discrepancies, the analysis generally indicated a statistically significant enhancement in trainee knowledge from pre-test to post-test. Nonetheless, the inconsistency in how results were reported across different studies posed a challenge; with some reporting pre-post, others only pre-follow up, and some omitting specific *p*-values. This inconsistency hampers direct comparisons and, as a result, some studies were not included in the final analysis of the second and third research questions due to their varied reporting of pre-post results within and between groups. This heterogeneity in reporting standards and outcome measures is not uncommon, and researchers have called for a more structured approach in future research to ensure that findings are both accurate and comparable across studies (Estrada et al., 2019; O'Connell et al., 2017; Stratton et al., 2019).

A significant challenge identified in the content analysis for improvement in trainee knowledge and self-efficacy is the overabundance and variety of measurement tools utilized across the units. With a total of 84 measures employed for both knowledge ($n = 36$; 42.9%) and

self-efficacy (n = 19; 22.6%), the lack of standardization presents a substantial obstacle. The profusion of tools, many unnamed or modified from existing measures, renders cross-study comparisons tenuous. Such inconsistency not only complicates the aggregate understanding of trainee knowledge and trainee self-efficacy improvement but also undermines the reliability of conclusions drawn from the data (Hunsley & Mash, 2007; Jensen-Doss & Hawley, 2010). The validity of research findings hinges on the consistent use of measurement tools that are both reliable and valid for the constructs they are intended to assess (Jensen-Doss & Hawley, 2010; Kimberlin & Winterstein, 2008). In the context of gatekeeper trainings, where the enhancement of knowledge and self-efficacy are paramount, the precise measurement of this improvement is crucial.

The effect of adapting existing measures to specific contexts or populations must be examined critically. Such adaptations, while potentially beneficial for relevance and sensitivity to the trainees' context, might alter the instrument's psychometric properties (Kimberlin & Winterstein, 2008; Zamanzadeh et al., 2015). Consequently, the outcomes reported could be reflective of the measure's altered state rather than the trainees' true knowledge or self-efficacy acquisition. Rigorous methodological scrutiny and validation studies are necessary to understand how these adaptations influence outcomes and to ensure that modified tools retain their effectiveness in accurately capturing the constructs they are intended to measure (Kimberlin & Winterstein, 2008; Zamanzadeh et al., 2015).

Training components

The fourth and final research question was focused on the various components that are included in gatekeeper trainings. These elements included modality (in person, online

asynchronous, and hybrid), duration (60-90 minutes all the way to 2 days), and educational

components (lecture, roleplays, etc.). The researcher found significant variability in the

implementation and reporting of components of gatekeeper trainings across the units. The content

analysis demonstrates a pronounced imbalance in the source of the units, with a majority

emanating from QPR ($n = 28$; 58.3%) and a minimal representation from Connect ($n = 2$; 4.2%).

Such a discrepancy poses a risk of skewing data, as it may not provide a balanced view of

gatekeeper trainings. This concentration of data from a single provider could inadvertently favor

or bias findings toward the components of that provider's training programs, potentially

overlooking the breadth and diversity of other programs.

In terms of modality, a predominant number of trainings ($n = 29$; 60.4%) were reported to

be conducted in person, compared to online asynchronous ($n = 12$; 25%) and hybrid modalities (n

$= 1$; 4.2%), with some units not reporting the modality ($n = 5$; 10.4%). This preponderance may

lead to data that is not fully representative of the effectiveness of different training modalities,

potentially misleading researchers into drawing conclusions that favor in-person training without

sufficient comparative data on online or hybrid approaches. Researchers have yet to reach a

consensus on whether training modality (in-person vs online) impact trainee outcomes. For

example, some studies indicate that in-person trainings of various types produce better results

than online trainings (Gross et al., 2023; Shendell et al., 2017). Other researchers have indicated

that the modality of a training does not seem to have a great impact on trainee outcomes (Berland

et al., 2019; Mallonee et al., 2018; Scott et al., 2016). The duration of the trainings also varied

widely, with many ($n = 20$; 40.8%) lasting only 60-90 minutes and others extending up to 14-16

hours or over two days ($n = 8$; 16.3%). Such variance can complicate the comparison of their

effectiveness since longer trainings may afford opportunities for more content and more extensive

practice opportunities, which are not possible within shorter formats.

A lack of consistency was noted in the reporting of educational components, with over half the units (n = 26; 54.2%) detailing these components, while a significant number did not (n = 22; 45.8%). The specificity in educational components—whether through slides, videos, or role plays—is essential for understanding the training's operational mechanics (Blase & Fixsen, 2013). Inconsistent reporting on these methods detracts from the fidelity of the training's design and hinders replication efforts, a cornerstone of robust research methodology (Blase & Fixsen, 2013; Moore et al., 2021; Morrison et al., 2009). Adaptation of educational components to fit the trainee's context—while beneficial for relevance—poses challenges for replication and broader applicability (Bell et al., 2007; Moore et al., 2021; Morrison et al., 2009). Without detailed descriptions of these modifications, it is difficult to determine if the training's effectiveness is a result of the core program or the adapted elements (Bell et al., 2007; Moore et al., 2021; Morrison et al., 2009).

It is noteworthy that role-plays and virtual simulations are highlighted in so many units while other educational components are not mentioned. As discussed in the previous chapters, research shows that trainees need improvement in both knowledge and self-efficacy in order to feel comfortable implementing suicide interventions (Almeida et al., 2021; Liebling-Boccio & Jennings, 2013; Miller et al., 2013; Osteen et al., 2014; Stover et al., 2021). Bandura's (1982) concept of self-efficacy refers to an individual's belief in their ability to successfully execute behaviors necessary to produce specific outcomes. Bandura emphasized that mastery experiences, where individuals successfully accomplish a task or overcome a challenge, are the most influential source of self-efficacy. In the context of suicide prevention gatekeeper trainings, incorporating role-play components could be crucial. Role-play allows trainees to practice suicide intervention techniques in a controlled, supportive environment, enhancing their confidence in their abilities. This experiential learning could significantly boost their self-efficacy, potentially

making them more effective in actual crisis situations by equipping them with the confidence to apply their skills effectively. This could be an important line of inquiry for future research.

Limitations

Content analysis, while a robust qualitative methodology for the systematic interpretation of text data, inherently carries limitations that may affect the generalizability and depth of findings (Krippendorff, 2019; Neuendorf, 2017). This methodology primarily relies on the available documentation and the researcher's interpretation, potentially leading to subjective biases if the documents are not comprehensive (Krippendorff, 2019; Neuendorf, 2017). Content analysis may not capture the nuances of training effectiveness in the absence of direct observational data or qualitative feedback from participants. This limitation is significant in studies where the richness of interactive or experiential learning components might be underreported or variably interpreted across different studies.

The present study's findings are constrained by several specific issues. First, the analysis was predominantly focused on studies from QPR, with less representation from the other three major gatekeeper training providers. This skewed focus might limit the comprehensiveness and applicability of the findings across different gatekeeper training contexts. Additionally, the inconsistency in what and how outcomes were measured presents a major limitation. Relying solely on p-values without considering mean and standard deviation can be limiting in several ways. Firstly, p-values do not provide information about the magnitude of the effect, which means that while they can indicate whether an effect is statistically significant, they do not convey how large or important this effect is (Watson et al., 2016). This is where the mean and standard deviation are critical as they describe the central tendency and the spread of the data,

respectively, offering insights into the practical significance of the findings. Without the mean and standard deviation, it is difficult to assess the variability and distribution of the data, which are key elements in understanding the context and reliability of the statistical outcomes. Omitting these statistics can lead to a superficial interpretation of results, potentially obscuring important nuances in the data. With 84 unique measures employed across the units, including many one-off adaptations whose reliability and validity were not verified, there is a significant challenge in synthesizing the data coherently. This variety in measurement tools and the lack of standardization in reporting (e.g., differences in reporting *p*-values, using varied pre-post or pre-follow-up assessments) further complicates comparisons and weakens the ability to draw firm conclusions about the efficacy of training interventions. The inconsistent reporting of training components and results affects the depth of analysis possible. Some studies provide detailed accounts of training interventions and outcomes, while others offer scant information, leading to potential biases in interpreting the overall effectiveness of gatekeeper trainings. This variability underscores the need for more rigorous standards in the reporting of gatekeeper training research to enhance the reliability and utility of content analyses in this field. Finally, consistent with qualitative research, the interpretations represent those of the current coding team, and another team may have interpreted findings from the content analysis differently.

Implications and directions for future research

The current study underscores the critical role of precise measurement in enhancing knowledge and self-efficacy through gatekeeper trainings. Future research could focus on the rigorous evaluation and refinement of measurement tools used in these trainings. It is essential to ensure that these tools are not only theoretically sound but are also adaptable to the diverse

educational settings in which gatekeeper trainings are implemented. This entails a systematic review of existing measures to validate their applicability and reliability, thus facilitating the accurate assessment of training outcomes. In addition to refining measurement tools, future researchers may consider adopting a standardized approach to measuring self-efficacy. This involves selecting instruments that can comprehensively capture the various dimensions of self-efficacy and thoroughly evaluating how adaptations of these measures may influence research outcomes. Standardization is crucial to generate reliable data that can inform effective practices and policies in suicide prevention training.

An equally important direction for future research is the intentional and sensitive collection of participant data, particularly concerning sex and gender. Researchers must ensure that data collection strategies do not erase trans and gender diverse individuals, whose experiences and outcomes may differ significantly from those of cisgender participants. Moreover, there is a need for meticulous attention to the recording of race and ethnicity data to avoid conflation or oversimplification of these complex identity categories. Accurate and respectful handling of these demographic variables is essential for understanding the nuanced impacts of gatekeeper trainings across different populations. Future researchers may also emphasize the implementation of more controlled trial designs, including randomized controlled trials (RCTs), to strengthen the evidence base regarding the effectiveness of gatekeeper trainings. Controlled trials can provide more definitive conclusions about causal relationships between training interventions and outcomes, thus enhancing the scientific rigor of research in this area. Finally, once a sufficient body of controlled trials is available, conducting a meta-analysis would be a pivotal step. A meta-analysis would enable researchers to aggregate findings and identify which specific aspects of gatekeeper trainings are most effective. This comprehensive synthesis

could then guide the development or adaptation of training programs, ensuring they are both evidence-based and tailored to meet the diverse needs of those they aim to educate.

Conclusion

Throughout the analysis of the units in this study, it becomes evident that while gatekeeper trainings are pivotal in suicide gatekeeper training efforts, there are notable methodological inconsistencies that must be addressed to enhance the field. The strengths of the current study lie in its comprehensive review and critique of existing literature, which highlights the need for uniform reporting practices, especially in demographics of trainees, the extent of knowledge improvement, and the various components of the trainings. The study's limitations include the disparity in the distribution of training providers, the overwhelming reliance on certain modalities, the varying durations of training sessions, and a lack of consistent measurement tools. Such diversity and inconsistency hamper the ability to compare outcomes across studies effectively and may influence the perceived efficacy of the trainings. To move forward, future research should strive for standardization in the evaluation of gatekeeper trainings, focusing on developing or agreeing upon common metrics for assessing trainee knowledge and self-efficacy. Moreover, researchers should aim to diversify study samples and ensure detailed and transparent reporting of training components to enable replication and meta-analytical studies. By addressing these issues, the field can better ascertain the effectiveness of suicide gatekeeper trainings, tailor them to diverse populations, and ultimately enhance their impact on suicide prevention.

References

Abdel-Khalek, A. M. (2004). Neither altruistic suicide, nor terrorism but martyrdom: A Muslim perspective. *Archives of Suicide Research, 8*(1), 99. https://doi.org/10.1080/13811110490243840

Abou Chahla, M. N., Khalil, M. I., Comai, S., Brundin, L., Erhardt, S., & Guillemin, G. J. (2023). Biological factors underpinning suicidal behaviour: An update. *Brain Sciences, 13*(3), 505. https://doi.org/10.3390/brainsci13030505

Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Gibb, B. E., Hankin, B. L., & Cornette, M. M. (2000). The hopelessness theory of suicidality. In T. Joiner & M. Rudd (Eds.), *Suicide science* (pp. 17–32). Kluwer Academic Publishers. https://doi.org/10.1007/0-306-47233-3_3

Adams, L. B., & Thorpe, R. J., Jr (2023). Achieving mental health equity in Black male suicide prevention. *Frontiers in Public Health, 11*, 1113222. https://doi.org/10.3389/fpubh.2023.1113222

Albright, G. (2020). Introduction to PK12 professional development role-play simulation technology. In E Bradley, (Eds.), *Games and simulations in teacher education: Advances in game-based learning*. (pp. 7-17). Springer, Cham. https://doi.org/10.1007/978-3-030-44526-3_2

Allchin, A., Chaplin, V., & Horwitz, J. (2019). Limiting access to lethal means: Applying the social ecological model for firearm suicide prevention. *Injury Prevention, 25*(Suppl 1), i44-i48. https://doi.org/10.1136/injuryprev-2018-042809

Allen, M., Burt, K., Bryan, E., Carter, D., Orsi, R., & Durkan, L. (2002). School counselors' preparation for and participation in crisis intervention. *Professional School Counseling, 6*(2), 96–102.

Alliance of Hope. (2024). *What is suicide postvention?* AllianceOfHope.org. Retrieved February 14, 2024, from https://allianceofhope.org/for-professionals/what-is-suicide-postvention/

Aliverdinia, A., & Pridemore, W. A. (2009). Women's fatalistic suicide in Iran: A partial test of Durkheim in an Islamic republic. *Violence Against Women, 15*(3), 307-320. https://doi.org/10.1177/1077801208330434

Almeida, A. S., Silva, A. C., Moura, A., Miasso, A. I., & Vedana, K. (2021). Meanings of suicidal behavior from the perspective of primary care professionals. *Public Health Nursing (Boston, Mass.), 38*(4), 564-570. https://doi.org/10.1111/phn.12880

Ambiguous labels in qualitative content analysis. *Qualitative Report, 23*(1), 219-221. https://doi.org/10.46743/2160-3715/2018.2872

American Foundation for Suicide Prevention. (2023a). *Lessons from Suicide Research* [Brief]. https://afsp.org/suicide-statistics

American Foundation for Suicide Prevention. (2023b). *Risk factors, protective factors, and warning signs.* AFSP.org. Retrieved December 21, 2023, from https://afsp.org/risk-factors-protective-factors-and-warning-signs/

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

American Psychological Association. (2018a). Helping professions. In APA dictionary of psychology. Retrieved February 14, 2024, from https://dictionary.apa.org/helping-professions

American Psychological Association. (2018b). Helping professions. In APA dictionary of

psychology. Retrieved February 14, 2024, from https://dictionary.apa.org/helping-

professions

American Psychological Association. (2018c). Suicidality. In APA dictionary of psychology.

Retrieved February 14, 2024, from https://dictionary.apa.org/suicidality

Armat, M. R., Assarroudi, A., Rad, M., Sharifi, H., & Heydari, A. (2018). Inductive and

deductive:

Arsenault-Lapierre, G., Kim, C., & Turecki, G. (2004). Psychiatric diagnoses in 3275 suicides: A

meta-analysis. *BMC Psychiatry, 4*(1), 37-37. https://doi.org/10.1186/1471-244X-4-37

Auerbach, J., & Miller, B. F. (2018). Preventing drug abuse and suicide: Educators and the

community play key roles in steering students away from risky behaviors. *District

Administration, 54*(9), 80.

Ayer, L., & Colpe, L. J. (2023). The key role of schools in youth suicide prevention. *Journal of

the American Academy of Child and Adolescent Psychiatry, 62*(1), 19-

21. https://doi.org/10.1016/j.jaac.2022.06.022

Azungah, T. (2018). Qualitative research: Deductive and inductive approaches to data analysis.

Qualitative Research Journal, 18(4), 383-400. https://doi.org/10.1108/QRJ-D-18-00035

Baber, K., & Bean, G. (2009). Frameworks: A community-based approach to preventing youth

suicide. *Journal of Community Psychology, 37*(6), 684-696.

https://doi.org/10.1002/jcop.20324

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2),

122–147. https://doi.org/10.1037/0003-066X.37.2.122

Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review*, *97*(1), 90–113.

https://doi.org/10.1037/0033-295x.97.1.90

Bean, G., & Baber, K. M. (2011). Connect: An effective community-based youth suicide

    prevention program. *Suicide & Life-Threatening Behavior, 41*(1), 87-97.

    https://doi.org/10.1111/j.1943-278X.2010.00006.x

Beck, A. T., Brown, G., Berchick, R. J., & Stewart, B. L. (1990). Relationship between

    hopelessness and ultimate suicide: A replication with psychiatric outpatients. *American*

    Journal of Psychiatry, *147*, 190–195. https://doi.org/10.1176/foc.4.2.291

Beck, A. T., Kovacs, M., & Weissman, A. (1975). Hopelessness and suicidal behavior: An

    overview. *JAMA: The Journal of the American Medical Association, 234*(11), 1146-1149.

    https://doi.org/10.1001/jama.1975.03260240050026

Beck, A. T., Steer, R., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A

    10-year prospective study of patients hospitalized with suicidal ideation. *American*

    Journal of Psychiatry, *142*(5), 559–563. https://doi.org/10.1176/ajp.142.5.559

Becnel, A. T., Range, L., & Remley, T. P. (2021). School counselors' exposure to student suicide,

    suicide assessment self-efficacy, and workplace anxiety: Implications for training,

    practice, and research. *The Professional Counselor, 11*(3), 327-339.

    https://doi.org/10.15241/atb.11.3.327

Bell, S. G., M.S, Newcomer, S. F., Ph.D, Bachrach, C., Ph.D, Borawski, E., Ph.D, Jemmott, J. B.,

    Ph.D, Morrison, D., Ph.D, Stanton, B., M.D, Tortolero, S., Ph.D, & Zimmerman, R.,

    Ph.D. (2007). Challenges in replicating interventions. *Journal of Adolescent*

    Health, 40(6), 514-520. https://doi.org/10.1016/j.jadohealth.2006.09.005

Bennett, S., Robb, K. A., Zortea, T. C., Dickson, A., Richardson, C., & O'Connor, R. C. (2023).

    Male suicide risk and recovery factors: A systematic review and qualitative

    metasynthesis of two decades of research. *Psychological Bulletin, 149*(7-8), 371-417.

    doi:https://doi.org/10.1037/bul0000397

Bengoechea-Fortes, Sabina de la Paz, Ramírez-Expósito, M. J., & Martínez-Martos, J. M. (2023). Suicide, neuroinflammation and other physiological alterations. *European Archives of Psychiatry and Clinical Neuroscience*, 1-13. https://doi.org/10.1007/s00406-023-01584-z

Bifftu, B. B., Dachew, B. A., Tiruneh, B. T., & Guracho, Y. D. (2019). Prevalence of suicidal ideation, suicidal attempt and completed suicide in ethiopia: A systematic review and meta-analysis protocol. *Systematic Reviews, 8*(1), 72-72. https://doi.org/10.1186/s13643-019-0986-8

Birmingham Police Department. (2023). *Join the team*. BirminghamAL.gov. Retrieved November 17, 2023, from https://police.birminghamal.gov/join-the-team/

Blase, K., Fixsen, D., & US Department of Health and Human Services. (2013). *Core intervention components: Identifying and operationalizing what makes programs work. ASPE research brief.* US Department of Health and Human Services.

Bommersbach, T. J., Rosenheck, R. A., Petrakis, I. L., & Rhee, T. G. (2022). Why are women more likely to attempt suicide than men? analysis of lifetime suicide attempts among US adults in a nationally representative sample. Journal of Affective Disorders, 311, 157-164. https://doi.org/10.1016/j.jad.2022.05.096

Bonnelle, R. (1997). The suicide intervention response inventory: A revision and validation. *Death Studies*, *21*(1), 59–81. https://doi.org/10.1080/074811897202137

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Wiley and Sons, Publication.

Bradley, E. G., & Kendall, B. (2019). Training teachers to identify and refer at-risk students through computer simulation. *Journal of Technology in Behavioral Science, 4*(4), 340-345. https://doi.org/10.1007/s41347-019-00106-w

Brown, M. Z. (2006). Linehan's theory of suicidal behavior: Theory, research, and dialectical behavior therapy. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and therapy* (1st ed., pp. 91–117). American Psychological Association. https://doi.org/10.1037/11377-005

Bryan, C. J., & Anestis, M. D. (2011). Reexperiencing symptoms and the interpersonal-psychological theory of suicidal behavior among deployed service members evaluated for traumatic brain injury. *Journal of Clinical Psychology, 67*, 856–865.

Bryan, C. J., Bryan, A. O., Roberge, E., Leifker, F. R., & Rozek, D. C. (2018). Moral injury, posttraumatic stress disorder, and suicidal behavior among National Guard personnel. *Psychological trauma: Theory, research, practices, and policy, 10*, 36–45. https://doi-org.ezaccess.libraries.psu.edu/10.1037/tra0000290 View

Burnette, C., Ramchand, R., & Ayer, L. (2015). Gatekeeper Training for Suicide Prevention: A Theoretical Model and Review of the Empirical Literature. *Rand health quarterly, 5*(1), 16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5158249/

Calear, A. L., Batterham, P. J., Trias, A., & Christensen, H. (2022). The literacy of suicide scale: Development, validation, and application. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 43*(5), 385-390. https://doi.org/10.1027/0227-5910/a000798

Cameron, J. J., & Stinson, D. A. (2019). Gender (mis)measurement: Guidelines for respecting gender diversity in psychological research. *Social and Personality Psychology Compass, 13*(11), n/a. https://doi.org/10.1111/spc3.12506

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment* (1st ed.). SAGE. https://doi.org/10.4135/9781412985642

Carvalho Da Silva Filho, Orli, & De Souza Minayo, Maria Cecilia. (2021). Triple taboo:
Considerations about suicide among children and adolescents. *Ciência & Saude Coletiva, 26*(7), 2693-2698. https://doi.org/10.1590/1413-81232021267.07302021

Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., McClay, J., Mill, J., Martin, J., Braithwaite, A., & Poulton, R. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science (American Association for the Advancement of Science), 301*(5631), 386-389. https://doi.org/10.1126/science.1083968

Cecchin, H. F. G., Murta, S. G., de Macedo, Etiene Oliveira Silva, & Moore, R. A. (2022). Scoping review of 30 years of suicide prevention in university students around the world: Efficacy, effectiveness, and cost-effectiveness. *Psicologia, reflexão e crítica, 35*(1), 22-22. https://doi.org/10.1186/s41155-022-00227-x

Center for Disease Control and Prevention. (2021). WISQARS *Leading Causes of Death Reports* [Suicide statistics in the US by age]. Retrieved from https://webappa.cdc.gov/sasweb/ncipc/leadcause.html

Centers for Disease Control and Prevention. (2023a). *2021 suicide data and statistics* [Report]. https://www.cdc.gov/suicide/suicide-data-statistics.html

Centers for Disease Control and Prevention. (2023b). *Risk and protective factors* CDC.gov. Retrieved December 20, 2023, from https://www.https://www.cdc.gov/suicide/factors/

Center for Open Science. (2017, July 15). *Center for open science launches thesis commons, an open-source platform for theses and dissertations*. https://www.cos.io/. Retrieved February 25, 2024, from https://www.cos.io/about/news/center-for-open-science-launches-thesis-commons-an-open-source-platform-for-theses-and-dissertations

Cerdeña, J. P., Grubbs, V., & Non, A. L. (2022). Genomic supremacy: The harm of conflating genetic ancestry and race. *Human Genomics, 16*(1), 18-18. https://doi.org/10.1186/s40246-022-00391-2

Chalmers, T. C. (1989). Meta-analysis. *American Association for the Advancement of Science*, *243*(4889), 283–284. https://doi.org/10.1126/science.243.4889.283-e

Chandler, A. (2022). Masculinities and suicide: Unsettling 'talk' as a response to suicide in men. *Critical Public Health, 32*(4), 499-508. https://doi.org/10.1080/09581596.2021.1908959

Chapple, A., Ziebland, S., & Hawton, K. (2015). Taboo and the different death? perceptions of those bereaved by suicide or other traumatic death. *Sociology of Health & Illness, 37*(4), 610-625. https://doi.org/10.1111/1467-9566.12224

Chung-Do, J. J., Bifulco, K., Antonio, M., Tydingco, T., Helm, S., & Goebert, D. A. (2016). A cultural analysis of the NAMI-NH connect suicide prevention program by rural community leaders in Hawai'i. *Journal of Rural Mental Health, 40*(2), 87-102. https://doi.org/10.1037/rmh0000044

Clark, M., Cook, J. M., Nair, D., & Wojcik, K. (2018). A content analysis of social class in ACA journals from 2000 to 2016. *Counseling Outcome Research and Evaluation, 9*(1), 16-27. https://doi.org/10.1080/21501378.2017.1409599

Coleman, D., Black, N., Ng, J., & Blumenthal, E. (2019). Kognito's avatar-based suicide prevention training for college students: Results of a randomized controlled trial and a naturalistic evaluation. *Suicide & Life-Threatening Behavior, 49*(6), 1735-1745. https://doi.org/10.1111/sltb.12550

Condron, D.S., Garraza, L. G., Walrath, C. M., McKeon, R., Goldston, D. B., & Heilbron, N. S. (2015). Identifying and referring youths at risk for Suicide following participation in

school-based gatekeeper training. *Suicide & Life-Threatening Behavior, 45*(4), 461-476. https://doi.org/10.1111/sltb.12142

Conejero, I., Olié, E., Courtet, P., & Calati, R. (2018). Suicide in older adults: current perspectives. *Clinical Interventions in Aging, 13*, 691–699. https://doi.org/10.2147/CIA.S130670

Connect Program, The. (2023). *Training & consultation*. TheConnectProgram.org. Retrieved July 6, 2023, from https://theconnectprogram.org/available-services/

Copas, John & Shi, Jian Qing. (2000). Meta-Analysis, Funnel Plots and Sensitivity Analysis. *Biostatistics -Oxford*, *1*(3), 247-262. https://doi.org/10.1093/biostatistics/1.3.247

Cramer, R. J., Judah, M. R., Badger, N. L., Holley, A. M., Judd, S., Peterson, M., Hager, N., Vandecar-Burdin, T., & Foss, J. J. (2022). Suicide on college campuses: A public health framework and case illustration. *Journal of American College Health, 70*(1), 1-8. https://doi.org/10.1080/07448481.2020.1739053

Cramer, R. J., & Kapusta, N. D. (2017). A social-ecological framework of theory, assessment, and prevention of suicide. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.01756

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications. https://doiorg.ezaccess.libraries.psu.edu/10.1002/nha3.20258

Cross, W., Matthieu, M. M., Lezine, D., & Knox, K. L. (2010). Does a brief suicide prevention gatekeeper training program enhance observed skills? *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 31*(3), 149-159. https://doi.org/10.1027/0227-5910/a000014

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

Dean, P. J. (1996). *Analysis of the escape theory of suicide in an outpatient clinical population*

    (304304162) [Doctoral dissertation, University of Southern Mississippi]. ProQuest

    Dissertations & Theses Global. https://www.proquest.com/docview/304304162

Dean, P. J., Range, L. M., (1999). Testing the escape theory of suicide in an outpatient clinical

    population. *Cognitive Therapy and Research, 23*(6), 561-572.

    https://doi.org/10.1023/A:1018728606568

Dean, P. J., Range, L. M., & Goggin, W. C. (1996). The escape theory of suicide in college

    students: Testing a model that includes perfectionism. *Suicide & Life-Threatening*

    Behavior, 26(2), 181-186. https://doi.org/10.1111/j.1943-278X.1996.tb00829.x

Department of Veterans Affairs. (2022). *National Veteran Suicide Prevention Annual Report*

    [Report]. https://www.mentalhealth.va.gov/docs/data-sheets/2022/2022-National-

    Veteran-Suicide-Prevention-Annual-Report-FINAL-508.pdf

Dhole, A. R., Petkar, P., Choudhari, S. G., & Mendhe, H. (2023). Understanding the factors

    contributing to suicide among the geriatric population: A narrative review. *Curēus (Palo*

    Alto, CA), 15(10), e46387-e46387. https://doi.org/10.7759/cureus.46387

Durkheim, E. (1897). *Le Suicide: Etude de socologie.* F. Alcan.

Durkheim, E., Spaulding, J. A., & Simpson, G. (1966). *Suicide: A study in sociology*. Free Press.

Durkin, A., Schenck, C., Narayan, Y., Nyhan, K., Khoshnood, K., & Vermund, S. H. (2020).

    Prevention of firearm injury through policy and law: The social ecological model. *The*

Journal of Law, Medicine & Ethics, 48(4_suppl), 191-197.

https://doi.org/10.1177/1073110520979422

Duval, Sue & Tweedie, Richard. (2000a). A Nonparametric "Trim and Fill" Method of

Accounting for Publication Bias in Meta-Analysis. *Journal of the American Statistical Association*, *95*(449), 89-98. https://doi.org/10.1080/01621459.2000.10473905

Dwan, K., Altman, D. G., Arnaiz, J. A., Bloom, J., Chan, A., Cronin, E., Decullier, E.,

Easterbrook, P. J., Von Elm, E., Gamble, C., Ghersi, D., Ioannidis, J. P. A., Simes, J., &

Williamson, P. R. (2008). Systematic review of the empirical evidence of study

publication bias and outcome reporting bias. *PloS One, 3*(8), e3081-e3081.

https://doi.org/10.1371/journal.pone.0003081

Dwan, K., Gamble, C., Williamson, P. R., Kirkham, J. J., Reporting Bias Group, & the Reporting

Bias Group. (2013). Systematic review of the empirical evidence of study publication

bias and outcome reporting bias - an updated review. *PloS One, 8*(7), e66844-e66844.

https://doi.org/10.1371/journal.pone.0066844

Eliason, M. J. (2000). Substance abuse counselor's attitudes regarding lesbian, gay, bisexual, and

transgendered clients. *Journal of Substance Abuse, 12*(4), 311-

328. https://doi.org/10.1016/S0899-3289(01)00055-4

Egger, Matthias & Smith, George Davey. (1995). Misleading Meta-Analysis. *British Medical Journal*, *310*(6982), 752-754. https://doi.org/10.1136/bmj.310.6982.752

Egger, M., & Smith, G. D. (1997). Meta-analysis: Potentials and promise. *British Medical Journal, 315*(7119), 1371-1374. https://doi.org/10.1136/bmj.315.7119.1371

Egger, Matthias, Smith, George Davey, Schneider, Martin & Minder, Christoph. (1997). Bias in

Meta-Analysis Detected by a Simple, Graphical Test. *British Medical Journal*,

315(7109), 629-634. https://doi.org/10.1136/bmj.315.7109.629

Estrada, E., Ferrer, E., & Pardo, A. (2019). Statistics for evaluating pre-post change: Relation between change in the distribution center and change in the individual scores. *Frontiers in Psychology, 9,* 2696-2696. https://doi.org/10.3389/fpsyg.2018.02696

Evans, R. E., & Price, S. (2013). Exploring organisational influences on the implementation of gatekeeper training: A qualitative study of the *applied suicide intervention skills training* (asist) programme in wales. *Critical Public Health*, *23*(2), 213–224. https://doi.org/10.1080/09581596.2012.752069

Faedda, G. L., Becker, I., Baroni, A., Tondo, L., Aspland, E., & Koukopoulos, A. (2010). The origins of electroconvulsive therapy: Prof. Bini's first report on ECT. *Journal of Affective Disorders, 120*(1), 12-15. https://doi.org/10.1016/j.jad.2009.01.023

Fei, W. (2010). *Suicide and justice: A Chinese perspective* (1st ed.). Routledge. https://doi.org/10.4324/9780203869116

Fernández Rodríguez, M., & Huertas, I. B. (2013). Suicide prevention in college students: A collaborative approach. *Revista Interamericana De Psicología, 47*(1), 53-60.

Garnett, M. F., Spencer, M. R., & Weeks, J. D. (2023). *Suicide among adults age 55 and older, 2021* (NCHS Data Brief No. 483) [Brief]. https://www.cdc.gov/nchs/data/databriefs/db483.pdf

Gaylor, E. M., Krause, K. H., Welder, L. E., Cooper, A. C., Ashley, C., Mack, K. A., Crosby, A. E., Trinh, E., Ivey-Stephenson, A. Z., & Whittle, L. (2023). Suicidal thoughts and behaviors among high school students: Youth risk behavior survey, United States, 2021. *MMWR Supplements, 72*(1), 45–54. https://doi.org/10.15585/mmwr.su7201a6

Gerardi, S. (2020). Durkheim's sociological analysis of suicide. *Sociology Mind, 10*, 82-85. doi: 10.4236/sm.2020.102007.

Graves, J. M., Mackelprang, J. L., Van Natta, S. E., & Holliday, C. (2018). Suicide prevention training: Policies for health care professionals across the United States as of October 2017. *American Journal of Public Health, 108*(6), 760-768. https://doi.org/10.2105/AJPH.2018.304373

Ghoncheh, R., Gould, M. S., Twisk, J. W., Kerkhof, A. J., & Koot, H. M. (2016). Efficacy of adolescent suicide prevention e-learning modules for gatekeepers: A randomized controlled trial. *JMIR Mental Health, 3*(1), e8-e8. https://doi.org/10.2196/mental.4614a

Giordano, A. L., Prosek, E. A., Schmit, M. K., & Wester, K. L. (2020). "We are still here": Learning from native American perspectives. *Journal of Counseling and Development, 98*(2), 159-171. https://doi.org/10.1002/jcad.12310

Gould, M., Cross, W., Pisani, A., Munfakh, M., & Kleinman, M. (2013). Impact of Applied Suicide Intervention Skills Training on the National Suicide Prevention Lifeline. *Suicide and Life-Threatening Behavior, 43*(6), 676–691. doi: 10.1111/sltb.12049

Gould, M. S., Greenberg, T., Velting, D. M., & Shaffer, D. (2003). Youth suicide risk and preventive interventions: A review of the past 10 years. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*(4), 386-405. doi:10.1097/01.CHI.0000046821.95464.CF

Gould, T. D., Zarate, C. A., & Thompson, S. M. (2019). Molecular pharmacology and neurobiology of rapid-acting antidepressants. *Annual Review of Pharmacology and Toxicology, 59*(1), 213-236. https://doi.org/10.1146/annurev-pharmtox-010617-052811

Han, J., Batterham, P. J., Calear, A. L., & Randall, R. (2018). Factors influencing professional help-seeking for suicidality: A systematic review. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 39*(3), 175-196. https://doi.org/10.1027/0227-5910/a000485

Hawgood, J., Woodward, A., Quinnett, P., & De Leo, D. (2022). Gatekeeper training and minimum standards of competency: Essentials for the suicide prevention workforce. Crisis: *The Journal of Crisis Intervention and Suicide Prevention, 43*(6), 516-522. https://doi.org/10.1027/0227-5910/a000794

Hays, D. G., & Singh, A. A. (2023). (2nd ed.). Cognella.

Hays, D. G., Wood, C., Dahl, H., & Kirk-Jenkins, A. (2016). Methodological rigor in *Journal of Counseling & Development* qualitative research articles: A 15-year review. *Journal of Counseling & Development, 94*(2), 172-183. https://doi.org/10.1002/jcad.12074

Heyman, I., Webster, B. J., & Tee, S. (2015). Curriculum development through understanding the student nurse experience of suicide intervention education – a phenomenographic study. *Nurse Education in Practice*, *15*(6), 498–506. https://doi.org/10.1016/j.nepr.2015.04.008

Higgins, Julian P. T., Altman, Douglas G, Gøtzsche, Peter C, Jüni, Peter, Moher, David, Oxman, Andrew D, Savović, Jelena, Schulz, Kenneth F, Weeks, Laura & Sterne, Jonathan AC. (2011). The Cochrane Collaboration's Tool for Assessing Risk of Bias in Randomised Trials. *British Medical Journal*, *343*. https://doi.org/10.1136/bmj.d5928

Høifødt, T. S., Talseth, A., & Olstad, R. (2007). A qualitative study of the learning processes in young physicians treating suicidal patients: From insecurity to personal pattern knowledge and self-confidence. *BMC Medical Education, 7*(1), 21-21. https://doi.org/10.1186/1472-6920-7-21

Holmes, G., Clacy, A., Hermens, D. F., & Lagopoulos, J. (2021). The long-term efficacy of suicide prevention gatekeeper training: A systematic review. *Archives of Suicide Research, 25*(2), 177-207. https://doi.org/10.1080/13811118.2019.1690608

Hunsley J., & Mash E.J. (2007). Evidence-based assessment. *Annual Review of Clinical Psychology. 3*:29–51

Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative Market Research, 3*(2), 82-90. https://doi.org/10.1108/13522750010322089

Jensen-Doss, A., & Hawley, K. M. (2010). Understanding barriers to evidence-based assessment: Clinician attitudes toward standardized assessment tools. *Journal of Clinical Child and Adolescent Psychology, 39*(6), 885-896. https://doi.org/10.1080/15374416.2010.517169

Joiner, T. E. (2005). *Why people die by suicide*. Harvard University Press.

Joiner, T. E., Johnson, F., & Soderstrom, K. (2002). Association between serotonin transporter gene polymorphism and family history of attempted and completed suicide. *Suicide & Life-Threatening Behavior, 32*(3), 329-332. https://doi.org/10.1521/suli.32.3.329.22167

Joiner, T. E., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., & Rudd, M. D. (2009). Main predictions of the interpersonal-psychological theory of suicidal behavior: Empirical tests in two samples of young adults. *Journal of Abnormal Psychology, 118*(3), 634-646. https://doi.org/10.1037/a0016500

Kahsay, E., Magness, C. S., Perskyj, S., Smith, P. K., & Foster, C. E. (2019). Suicide prevention training in the child welfare workforce: Knowledge, attitudes, and practice patterns prior to and following safeTALK training.(LivingWorks education inc.'s gatekeeper training program). *Child Welfare, 98*(1), 95.

Keller S, McNeill V, Honea J, Miller LP. (2019) A look at culture and stigma of suicide: textual analysis of community theatre performances. I*nternational Journal of Environmental Research in Public Health. 16,* 352. doi: 10.3390/ijerph16030352,

Kidd, J. D., Tettamanti, N. A., Kaczmarkiewicz, R., Corbeil, T. E., Dworkin, J. D., Jackman, K. B., Hughes, T. L., Bockting, W. O., & Meyer, I. H. (2023). Prevalence of substance use and mental health problems among transgender and cisgender U.S. adults: Results from a

national probability sample. *Psychiatry Research, 326*, 115339-115339. https://doi.org/10.1016/j.psychres.2023.115339

Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy, 65*(23), 2276-2284. https://doi.org/10.2146/ajhp070364

Kinchin, I., Russell, A. M. T., Petrie, D., Mifsud, A., Manning, L., & Doran, C. M. (2020). Program evaluation and decision analytic modelling of universal suicide prevention training (safeTALK) in secondary schools. *Applied Health Economics and Health Policy, 18*(2), 311-324. https://doi.org/10.1007/s40258-019-00505-3

Kirakosian, N., Stanton, A. M., McKetchnie, S. M., King, D., Dolotina, B., O'Cleirigh, C., Grasso, C., Potter, J., Mayer, K. H., & Batchelder, A. W. (2023). Suicidal ideation disparities among transgender and gender diverse compared to cisgender community health patients. *Journal of General Internal Medicine, 38*(6), 1357-1365. https://doi.org/10.1007/s11606-022-07996-2

Kognito. (2023a). *At-risk in primary care: Adolescents*. Kognito.com. Retrieved July 5, 2023, from https://kognito.com/higher-ed/healthcare

Kognito. (2023b). *Higher ed at-risk mental health for faculty & staff*. Kognito.com. Retrieved July 5, 2023, from https://kognito.com/solution/at-risk-for-university-faculty-and-staff/

Kognito. (2023c). *Higher ed at-risk mental health for students*. Kognito.com. Retrieved July 5, 2023, from https://kognito.com/solution/at-risk-for-college-students/

Kognito. (2023d). *List of trainings*. Kognito.com. Retrieved July 5, 2023, from https://kognito.com

Kral, M. J., & Kidd, S. (2019). Community-based participatory research and community empowerment for suicide prevention. In J. K. Hirsch, E. C. Chang, & J. Kelliher Rabon

(Eds.), *A positive psychological approach to suicide* (pp. 285–299). Springer International Publishing. https://doi.org/10.1007/978-3-030-03225-8_12

Krippendorff, K. (2019). Content analysis: An introduction to its methodology (4th ed.). SAGE. https://doi.org/10.4135/9781071878781

Kuntz, C. V. (2019). *Meta-analytic review of gatekeeper training programs on college campuses* (Publication No. 13900733) [Doctoral dissertation, University of Buffalo.] PDQT Open.

Labouliere, C. D., Tarquini, S. J., Totura, C. M. W., Kutash, K., & Karver, M. S. (2015). Revisiting the concept of knowledge: How much is learned by students participating in suicide prevention gatekeeper training? *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 36*(4), 274-280. https://doi.org/10.1027/0227-5910/a000323

LaCroix, J. M., Walsh, A., Baggett, M. A., Madison Carter, K., Ghahramanlou-Holloway, M., Carter, S. P., Cobb, E., Darmour, C. A., Ekman, E., Elmi, A., Arellano-Euribe, A. P., Grammer, J., Kerr, N. A., Perera, K. U., Lee-Tauler, S. Y., & the Suicide Care, Prevention, and Research Initiative (Suicide CPR Initiative) Team. (2021). Three department of defense-funded public health approaches to reduce military suicide. *Suicide & Life-Threatening Behavior, 51*(2), 334-343.

Lee, J. B., & Bartlett, M. L. (2005). Suicide prevention: Critical elements for managing suicidal clients and counselor liability without the use of a no-suicide contract. *Death Studies, 29*(9), 847-865. https://doi.org/10.1080/07481180500236776

Lamis, D. A., Underwood, M., & D'Amore, N. (2017). Outcomes of a suicide prevention gatekeeper training program among school personnel. *Crisis, 38*(2), 89–99. https://doi.org/10.1027/0227-5910/a000414

Liebling-Boccio, D. E., & Jennings, H. R. (2013). The current status of graduate training in suicide risk assessment. *Psychology in the Schools, 50*, 72–86. doi:10.1002/pits.21661

Linehan, M. M. (1993). Cognitive-behavioral treatment of borderline personality disorder. New York, NY: Guilford Press.

Lipsey, M. W., & Wilson, D. (2001). Practical meta-analysis (applied social research methods).

Lipson, S. K., Speer, N., Brunwasser, S., Hahn, E., & Eisenberg, D., (2014). Gatekeeper training and access to mental health care at universities and colleges. *Journal of Adolescent Health, 55*(5), 612-619. https://doi.org/10.1016/j.jadohealth.2014.05.009

LivingWorks. (2023). *Evidence and impact*. LivingWorks.net. Retrieved July 4, 2023, from https://www.livingworks.net/who-we-are

LivingWorks. (2023a). *LivingWorks ASIST*. https://livingworks-marketing-production.s3.amazonaws.com/9EN4401_ASIST_InfoSheet.pdf?mtime=2022061313510

LivingWorks. (2023b). *LivingWorks faith*. https://livingworks-marketing-production.s3.amazonaws.com/9EN4411_Faith_InfoSheet-1.pdf

LivingWorks. (2023c). *LivingWorks safeTALK*. https://livingworks-marketing-production.s3.amazonaws.com/9EN4403_safeTALK_InfoSheet.pdf

LivingWorks. (2023d). *LivingWorks Start*. https://livingworks-marketing-production.s3.amazonaws.com/9EN4410_Start_InfoSheet.pdf

Logie, C., Bridge, T. J., & Bridge, P. D. (2007). Evaluating the phobias, attitudes, and cultural competence of master of social work students toward the LGBT populations. *Journal of Homosexuality, 53*(4), 201-221. https://doi.org/10.1080/00918360802103472

Ma, J., Batterham, P. J., Calear, A. L., & Han, J. (2016). A systematic review of the predictions of the Interpersonal–Psychological theory of suicidal behavior. *Clinical Psychology Review, 46*, 34-45. https://doi.org/10.1016/j.cpr.2016.04.008

Mann, J. J. (2003). Neurobiology of suicidal behaviour. *Nature Reviews. Neuroscience, 4*(10), 819-828. https://doi.org/10.1038/nrn1220

Mann, J. J., Waternaux, C., Haas, G. L., & Malone, K. M. (1999). Toward a clinical model of suicidal behavior in psychiatric patients. *The American Journal of Psychiatry, 156*(2), 181-189. https://doi.org/10.1176/ajp.156.2.181

Marlow, N. M., Xie, Z., Tanner, R., Jo, A., & Kirby, A. V. (2021). Association between disability and suicide-related outcomes among U.S. adults. *American Journal of Preventive Medicine, 61*(6), 852-862. https://doi.org/10.1016/j.amepre.2021.05.035

Mason, K. (2021). Suicide stigma in christian faith communities: A qualitative study. *Religions (Basel, Switzerland), 12*(7), 540. https://doi.org/10.3390/rel12070540

Mathur, Maya B. & VanderWeele, Tyler J. (2020). Sensitivity Analysis for Publication Bias in Meta-Analyses. *Journal of the Royal Statistical Society Series C*, *69*(5), 1091-1119. https://doi.org/10.1111/rssc.12440

Matthieu, M. M., Cross, W., Batres, A. R., Flora, C. M., & Knox, K. L. (2008). Evaluation of gatekeeper training for suicide prevention in veterans. *Archives of Suicide Research, 12*(2), 148-154. https://doi.org/10.1080/13811110701857491

Mays, V.M., Cochran, S.D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health. 91*(11):1869-1876. doi:10.2105/ajph.91.11.1869

McGeorge, C. R., Carlson, T. S., & Toomey, R. B. (2015). An exploration of family therapists' beliefs about the ethics of conversion therapy: The influence of negative beliefs and clinical competence with lesbian, gay, and bisexual clients. *Journal of Marital and Family Therapy, 41*(1), 42-56. https://doi.org/10.1111/jmft.12040

McGillivray, L., Rheinberger, D., Wang, J., Burnett, A., & Torok, M. (2022). Non-disclosing youth: A cross sectional study to understand why young people do not disclose suicidal

thoughts to their mental health professional. *BMC Psychiatry, 22*(1), 3-3.

https://doi.org/10.1186/s12888-021-03636-x

McKay, S., Byrne, S. J., Clarke, A., Lamblin, M., Veresova, M., & Robinson, J. (2022). Parent

education for responding to and supporting youth with suicidal thoughts (PERSYST): An

evaluation of an online gatekeeper training program with australian parents. *International*

Journal of Environmental Research and Public Health, 19(9), 5025.

https://doi.org/10.3390/ijerph19095025

McKibben, W. B., Umstead, L. K., & Borders, L. D. (2017). Identifying dynamics of counseling

leadership: A content analysis study. *Journal of Counseling & Development, 95*(2), 192-

202. https://doi.org/10.1002/jcad.12131

McManus, R. (2005). Freedom and suicide: A genealogy of suicide regulation in new zealand

1840-2000. *Journal of Historical Sociology, 18*(4), 430-456.

https://doi.org/10.1111/j.1467-6443.2005.00263.x

McNulty, J. A. (1965). An analysis of recall and recognition processes in verbal learning. *Journal*

of Verbal Learning and Verbal Behavior, 4(5), 430-436. https://doi.org/10.1016/S0022-

5371(65)80084-6

Miller, L. G., McGlothlin, J. M., & West, J. D. (2013). Taking the fear out of suicide assessment

and intervention: A pedagogical and humanistic practice. *The Journal of Humanistic*

Counseling, 52, 106–121. doi:10.1002/j.2161-1939.2013.00036.x

Milner, A., Bollier, A., Emerson, E., & Kavanagh, A. (2019). The relationship between disability

and suicide: Prospective evidence from the ten to men cohort. *Journal of Public Health*

(Oxford, England), 41(4), 707-713. https://doi.org/10.1093/pubmed/fdy197

Merriam-Webster. (2024). Suicide. In *Merriam-Webster.com dictionary*. Retrieved February 14,

2024, from https://www.merriam-webster.com/dictionary/suicide

Mishkind, M. C., Yannacone, A., Lopez, A., Jortberg, B. T., Sherrill, A., & Mescher, T. (2023). Virtual versus in-person suicide prevention training in the workplace: Evaluation of the VitalCog program. *Journal of Technology in Behavioral Science, 8*(4), 352-359. https://doi.org/10.1007/s41347-023-00301-w

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*(1), 29-29. https://doi.org/10.1186/s13034-018-0233-4

Monnin, J., Thiemard, E., Vandel, P., Nicolier, M., Tio, G., Courtet, P., Bellivier, F., Sechter, D., & Haffen, E. (2012). Sociodemographic and psychopathological risk factors in repeated suicide attempts: Gender differences in a prospective study. *Journal of Affective Disorders, 136*(1), 35-43. https://doi.org/10.1016/j.jad.2011.09.001

Monteith, L. L., Menefee, D. S., Pettit, J. W., Leopoulos, W. L., & Vincent, J. P. (2013). Examining the interpersonal-psychological theory of suicide in an inpatient veteran sample. *Suicide & Life-Threatening Behavior, 43*(4), 418-428. https://doi.org/10.1111/sltb.12027

Montemarano, V., Troister, T., Lambert, C. E., & Holden, R. R. (2018). A four-year longitudinal study examining psychache and suicide ideation in elevated-risk undergraduates: A test of shneidman's model of suicidal behavior. *Journal of Clinical Psychology, 74*(10), 1820-1832. https://doi.org/10.1002/jclp.22639

Moore, G., Campbell, M., Copeland, L., Craig, P., Movsisyan, A., Hoddinott, P., Littlecott, H., O'Cathain, A., Pfadenhauer, L., Rehfuess, E., Segrott, J., Hawe, P., Kee, F., Couturiaux, D., Hallingberg, B., & Evans, R. (2021). Adapting interventions to new contexts—the ADAPT guidance. *BMJ (Online), 374*, n1679-n1679. https://doi.org/10.1136/bmj.n1679

Morral, A. R., Schell, T. L., & Smart, R. (2023). Comparison of suicide rates among US veteran

and nonveteran populations. *JAMA Network Open, 6*(7), e2324191-e2324191.

https://doi.org/10.1001/jamanetworkopen.2023.24191

Morris, S. (2007). Estimating effect sizes from pretest-posttest-control group designs.

Organizational Research Methods, 11, 364-386. doi: 10.1177/1094428106291059

Morrison, D. M., Hoppe, M. J., Gillmore, M. R., Kluver, C., Higa, D., & Wells, E. A. (2009).

Replicating an intervention: The tension between fidelity and adaptation. *AIDS Education*

and Prevention, 21(2), 128-140. https://doi.org/10.1521/aeap.2009.21.2.128

Mueller, A. S., & Abrutyn, S. (2016). Adolescents under pressure: A new durkheimian

framework for understanding adolescent suicide in a cohesive community. *American*

Sociological Review, 81(5), 877-899. https://doi.org/10.1177/0003122416663464

Nasir, B. F., Hides, L., Kisely, S., Ranmuthugala, G., Nicholson, G. C., Black, E., Gill, N.,

Kondalsamy-Chennakesavan, S., & Toombs, M. (2016). The need for a culturally-

tailored gatekeeper training intervention program in preventing suicide among indigenous

peoples: A systematic review. *BMC Psychiatry, 16*(1), 357-357.

https://doi.org/10.1186/s12888-016-1059-3

Neimeyer, R. A., & Bonnelle, K. (1997). The suicide intervention response inventory: A revision

and validation. *Death studies, 21*(1), 59–81. https://doi.org/10.1080/074811897202137

Neuendorf, K. A. (2002). *The content analysis guidebook.* (1st ed.). SAGE Publications, Inc.

Neuendorf, K. A. (2017). *The content analysis guidebook* (2nd ed.). SAGE Publications, Inc.

https://doi.org/10.4135/9781071873045

Nock, M.K., & Favazza, A.R., Nonsuicidal self-injury: definition and classification. In: Nock,

M.K., editor. *Understanding nonsuicidal self-injury: origins, assessment, and treatment*.

Washington (DC): American Psychological Association; 2009. pp. 9–18.

Nixon, M. K., Cloutier, P. F., & Aggarwal, S. (2002). Affect regulation and addictive aspects of

      repetitive self-injury in hospitalized adolescents. *Journal of the American Academy of*

      Child and Adolescent Psychiatry, 41(11), 1333-1341. https://doi.org/10.1097/00004583-

      200211000-00015

O'Brian K.H.M., Knight J.R., Harris S.K. (2017). A call for social responsibility and suicide risk

      screening, prevention, and early intervention following the release of the Netflix series 13

      reasons why. *JAMA Intern Med. 177,* 1418–9.

      https://doi.org/10.1001/jamainternmed.2017.3388

O'Connell, N. S., Dai, L., Jiang, Y., Speiser, J. L., Ward, R., Wei, W., Carroll, R., &

      Gebregziabher, M. (2017). Methods for analysis of pre-post data in clinical research: A

      comparison of five common methods. *Journal of Biometrics & Biostatistics, 8*(1), 1-

      8. https://doi.org/10.4172/2155-6180.1000334

O'Rourke, K. (2007). An historical perspective on meta-analysis: Dealing quantitatively with

      varying study results. *Journal of the Royal Society of Medicine*, *100*(12), 579–582.

      https://doi.org/10.1177/0141076807100012020

Office of Minority Health. (2023a). *Mental and behavioral health - African Americans*. U.S.

      Department of Health & Human Services, Office of Minority Health. Retrieved

      November 23, 2023, from https://minorityhealth.hhs.gov/mental-

and-behavioral-health-african-americans

Office of Minority Health. (2023b). *Mental and behavioral health - American Indians/Alaska*

      Natives. U.S. Department of Health & Human Services, Office of Minority Health.

      Retrieved November 23, 2023, from https://minorityhealth.hhs.gov/mental-and-

      behavioral-health-american-indiansalaska-natives

Oquendo, M. A., Bongiovi-Garcia, M. E., Galfalvy, H., Goldberg, P. H., Grunebaum, M. F., Burke, A. K., & Mann, J. J. (2007). Sex differences in clinical predictors of suicidal acts after major depression: A prospective study. *The American Journal of Psychiatry, 164*(1), 134-141. https://doi.org/10.1176/ajp.2007.164.1.134

Oquendo, M. A., & Mann, J. J. (2000). the biology of impulsivity and suicidality. *The Psychiatric Clinics of North America, 23*(1), 11-25. https://doi.org/10.1016/S0193-953X(05)70140-4

Orwin, Robert G. (1983). A Fail-Safe N for Effect Size in Meta-Analysis. *Journal of educational statistics*, *8*(2), 157-159. https://doi.org/10.3102/10769986008002157

Osteen, P. J., Jacobson, J. M., & Sharpe, T. L. (2014). Suicide prevention in social work education: How prepared are social work students? *Journal of Social Work Education, 50*(2), 349-364. https://doi.org/10.1080/10437797.2014.885272

Owen, G., Belam, J., Lambert, H., Donovan, J., Rapport, F., & Owens, C. (2012). Suicide communication events: Lay interpretation of the communication of suicidal ideation and intent. *Social Science & Medicine*, *75*(2), 419–428. https://doi.org/10.1016/j.socscimed.2012.02.058

Pan, M. L. (2004). Preparing literature reviews: Qualitative and quantitative approaches. Pyrczak Publishing.

Pappas, S. (2023). More than 20% of teens have seriously considered suicide. Psychologists and communities can help tackle the problem. *Monitor on Psychology, 54*(5). https://www.apa.org/monitor/2023/07/psychologists-preventing-teen-suicide

Pearce, K., Rickwood, D., & Beaton, S. (2003). Preliminary evaluation of a university-based suicide intervention project: Impact on participants. *Australian e-Journal for the Advancement of Mental Health AeJAMH, 2*(1), 25-35. https://doi.org/10.5172/jamh.2.1.25

Perez-Rodriguez, M. M., Baca-Garcia, E., Oquendo, M. A., & Blanco, C. (2008). Ethnic differences in suicidal ideation and attempts. *Primary Psychiatry, 15*(2), 44-53.

Pinna, M., Manchia, M., Oppo, R., Scano, F., Pillai, G., Loche, A. P., Salis, P., & Minnai, G. P. (2018). Clinical and biological predictors of response to electroconvulsive therapy (ECT): A review. *Neuroscience Letters, 669*, 32-42. https://doi.org/10.1016/j.neulet.2016.10.047

Pistone, I., Beckman, U., Eriksson, E., Lagerlöf, H., & Sager, M. (2019). The effects of educational interventions on suicide: A systematic review and meta-analysis. *The International Journal of Social Psychiatry, 65*(5), 399–412. https://doi.org/10.1177/0020764019852655

Pitman, A. L., Stevenson, F., Osborn, D. P. J., & King, M. B. (2018). The stigma associated with bereavement by suicide and other sudden deaths: A qualitative interview study. *Social Science & Medicine (1982), 198*, 121-129. https://doi.org/10.1016/j.socscimed.2017.12.035

Platt, S., Arensman, E., & Rezaeian, M. (2019). National suicide prevention strategies - progress and challenges. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 40*(2), 75-82. https://doi.org/10.1027/0227-5910/a000587

Polanco-Roman, L., & Miranda, R. (2022). A cycle of exclusion that impedes suicide research among racial and ethnic minority youth. *Suicide & Life-Threatening Behavior, 52*(1), 171-174. https://doi.org/10.1111/sltb.12752

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24*, 1–24. doi: http://www.jstor.org/stable/223472

Prosek, E. A., & Burgin, E. E. (2020). Counseling military populations: A content analysis of counseling journals from 1998 to 2018. *Journal of Counseling and Development, 98*(4), 423-434. https://doi.org/10.1002/jcad.12344

QPR Institute. (2023a). *Online trainings*. QPRInstitute.com. Retrieved July 5, 2023, from https://qprinstitute.com/professional-training

QPR Institute. (2023b). *QPR online gatekeeper training*. QPRInstitute.com. Retrieved December 19, 2023, from https://qprinstitute.com/individual-training

Quinnett, P. (2013). *The QPR Theory Paper*. QPR Institute. https://qprinstitute.com/uploads/main/QPR-Theory-Paper-Master-Final-2019.pdf

Ramchand, R., & Roth, E. (2014). Racial and ethnic differences in exposure to suicide prevention messaging, confidence in one's ability to intervene with someone at risk, and resource preferences. *Rand Health Quarterly, 4*(2), 10-10.

Robles, R., Real, T., & Reed, G. M. (2021). Depathologizing sexual orientation and transgender identities in psychiatric classifications. *Consortium Psychiatricum (English Ed. Online), 2*(2), 45-53. https://doi.org/10.17816/CP61

Rodgers, P. (2010). Review of the Applied Suicide Intervention Skills Training Program (ASIST): Rationale, evaluation skills, and directions for future research. Retrieved from https://vivatselvmordsforebygging.net/wp-content/uploads/2015/04/Review-of-the-Applied-Suicide-Intervention-Skills-Training-Program-ASIST.pdf

Rosenberg, Michael S. (2005). The File-Drawer Problem Revisited: A General Weighted Method for Calculating Fail-Safe Numbers in Meta-Analysis. *Evolution*, *59*(2), 464-468. https://doi.org/10.1111/j.0014-3820.2005.tb01004.x

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin, 86*(3), 638-641. https://doi.org/10.1037/0033-2909.86.3.638

Rosenthal, Robert & Rubin, Donald B. (1988). [Selection Models and the File Drawer Problem]: Comment: Assumptions and Procedures in the File Drawer Problem. *Statistical Science*, *3*(1), 120-125. https://doi.org/10.1214/ss/1177013014

Rothstein, Hannah R. (1992). Meta-Analysis and Construct Validity. *Human performance*, *5*(1-2), 71-80. https://doi.org/10.1080/08959285.1992.9667925

Rothstein, Hannah R. & Bushman, Brad J. (2012). Publication Bias in Psychological Science: Comment on Ferguson and Brannick (2012). *Psychological Methods*, *17*(1), 129-136. https://doi.org/10.1037/a0027128

Sabe, M., Kaiser, S., & Niveau, G. (2021). Suicide in psychiatry and medical liability: A case series. *International Journal of Law and Psychiatry, 74,* 101671-101671. https://doi.org/10.1016/j.ijlp.2020.101671

Sarche, M., & Spicer, P. (2008). Poverty and health disparities for american indian and alaska native children: Current knowledge and future prospects. *Annals of the New York Academy of Sciences, 1136*(1), 126-136. https://doi.org/10.1196/annals.1425.017

Selby, E. A., Joiner, T. E., & Ribeiro, J. D. (2014). Comprehensive theories of suicidal behaviors. In M. K. Nock (Ed.), *The oxford handbook of suicide and self-injury* (pp. 286–307). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195388565.013.0016

Shanawani, H., Dame, L., Schwartz, D. A., & Cook-Deegan, R. (2006). Non-reporting and inconsistent reporting of race and ethnicity in articles that claim associations among genotype, outcome, and race or ethnicity. *Journal of Medical Ethics, 32*(12), 724-728. https://doi.org/10.1136/jme.2005.014456

Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., PRISMA-P Group, & the PRISMA-P Group. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: Elaboration

and explanation. *British Medical Journal (Online)*, 349, g7647-g7647.

https://doi.org/10.1136/bmj.g7647

Shannonhouse, L., Lin, Y. D., Shaw, K., & Porter, M. (2017a). Suicide intervention training for

K–12 schools: A Quasi-Experimental study on ASIST. *Journal of Counseling and

Development, 95*(1), 3-13. https://doi.org/10.1002/jcad.12112

Shannonhouse, L., Lin, Y. D., Shaw, K., Wanna, R., & Porter, M. (2017b). Suicide intervention

training for college staff: Program evaluation and intervention skill measurement.

Journal of American College Health, 65(7), 450-456.

https://doi.org/10.1080/07448481.2017.1341893

Shearin, E. N., & Linehan, M. M. (1994). Dialectical behavior therapy for borderline personality

disorder: Theoretical and empirical foundations. *Acta Psychiatrica Scandinavica,

89*(s379), 61-68. https://doi.org/10.1111/j.1600-0447.1994.tb05820.x

Shneidman, E. S. (1993). Suicide as psychache. *The Journal of Nervous and Mental Disease,

181*(3), 145-147. https://doi.org/10.1097/00005053-199303000-00001

Shneidman, E. S. (1996). *The suicidal mind*. Oxford University Press.

Shim, Y., Choe, K., Kim, K., Kim, J., & Ha, J. (2021). The applicability of the interpersonal–

psychological theory of suicide among community-dwelling older persons. *Suicide &

Life-Threatening Behavior, 51*(4), 816-823. https://doi.org/10.1111/sltb.12757

Shin, I. (2017). Recent research trends in meta-analysis. *Asian Nursing Research*, *11*(2), 79–83.

https://doi.org/10.1016/j.anr.2017.05.004

Slaney, K. L., Tafreshi, D., & Hohn, R. (2018). Random or fixed? an empirical examination of

meta-analysis model choices. *Review of General Psychology*, *22*(3), 290–304.

https://doi.org/10.1037/gpr0000140

Smith, A. R., Silva, C., Covington, D. W., & Joiner, T. E. (2014a). An assessment of suicide-related knowledge and skills among health professionals. *Health Psychology*, *33*(2), 110–119. https://doi.org/10.1037/a0031062

Smith E., Jones T., Ward R., Dixon J., Mitchell A. J., & Hillier J (2014b). *From blues to rainbows: Mental Health and wellbeing of gender diverse and transgender young people in Australia*. Melbourne: Australian Research Centre in Sex, Health and Society.

Smith, M. L., & Glass, G. V. (1977). Meta-analysis of psychotherapy outcome studies. *American Psychologist*, *32*(9), 752–760. https://doi.org/10.1037/0003-066x.32.9.752

Smith-Osborne, A., Maleku, A., & Morgan, S. (2017). Impact of applied suicide intervention skills training on resilience and suicide risk in army reserve units. *Traumatology (Tallahassee, Fla.), 23*(1), 49-55. https://doi.org/10.1037/trm0000092

Snowden, L. R., Cordell, K., & Bui, J. (2023). Racial and ethnic disparities in health status and community functioning among persons with untreated mental illness. *Journal of Racial and Ethnic Health Disparities, 10*(5), 2175-2184. https://doi.org/10.1007/s40615-022-01397-1

Snyder, J. A. (1971). The use of gatekeepers in crisis management. *Bulletin of Suicidology, 8*, 39-44.

Springer, S., Paone, C. H., Colucci, J., & Moss, L. J. (2020). Addressing suicidality: Examining preservice school counselors' perceptions of their training experiences. *Journal of Child and Adolescent Counseling, 6*(1), 18–36. https://doi.org/10.1080/23727810.2018.1556990

Stone, D. M., Mack, K. A., & Qualters, J. (2023). *Notes from the Field: Recent Changes in Suicide Rates, by Race and Ethnicity and Age Group — United States, 2021* (72:160–

162) [Report]. U.S. Department of Health and Human Services.

https://doi.org/10.15585/mmwr.mm7206a4

Stone, D., Trinh, E., Zhou, H., Welder, L., End of Horn, P., Fowler, K., & Ivey-Stephenson, A.

(2022). Suicides among American Indian or Alaska Native persons: National violent

death reporting system, United States, 2015–2020. *MMWR. Morbidity and Mortality

Weekly Report, 71*(37), 1161-1168. https://doi.org/10.15585/mmwr.mm7137a1

Stover, A. N., Lavigne, J. E., & Carpenter, D. M. (2023). A scoping review of suicide prevention

training programs for pharmacists and student pharmacists. *American Journal of

Pharmaceutical Education, 87*(3), ajpe8917. https://doi.org/10.5688/ajpe8917

Suicide Prevention Resource Center. (2018). *Topics and terms.* SPRC.org. Retrieved February

14, 2024, from https://sprc.org/topics-and-terms/

Summers-Effler, E. (2004). Defensive strategies: the formation and social implications of

patterned self-destructive behavior. *Adv. Group Process. 21*, 309–325. doi:

10.1016/S0882-6145(04)21012-8

Takahashi, A., Tachikawa, H., Morita, N., Aiba, M., Shiratori, Y., Nemoto, K., & Arai, T. (2021).

Suicide prevention gatekeeper self-efficacy scale (GKSES). *Crisis: The Journal of Crisis

Intervention and Suicide Prevention, 42*(2), 128-135. https://doi.org/10.1027/0227-

5910/a000698

Tallaksen, D., Bråten, K., & Tveiten, S. (2013). "… you are not particularly helpful as a helper

when you are helpless". *Nordic Journal of Nursing Research*, *33*(1), 46–50.

https://doi.org/10.1177/010740831303300110

Teo, A.R., Andrea, S.B., Sakakibara, R. et al. (2016). Brief gatekeeper training for suicide

prevention in an ethnic minority population: a controlled intervention. *BMC

Psychiatry 16*, 211. https://doi.org/10.1186/s12888-016-0924-4

Trevor Project, The. (2022). *Trauma and suicide risk among LGBTQ youth* [Research brief]. https://www.thetrevorproject.org/research-briefs/trauma-and-suicide-risk-among-lgbtq-youth-july-2022/

Troister, T., & Holden, R. R. (2010). Comparing psychache, depression, and hopelessness in their associations with suicidality: A test of Shneidman's theory of suicide. *Personality and Individual Differences, 49*(7), 689-693. https://doi.org/10.1016/j.paid.2010.06.006

U.S. Bureau of Labor and Statistics. (2024). *2023 Labor Force Statistics from the Current Population Survey* [Report]. https://www.bls.gov/cps/cpsaat11.htm

U.S. Department of Veterans Affairs. (2022). *National veteran suicide prevention annual report* [Report]. https://www.mentalhealth.va.gov/docs/data-sheets/2022/2022-National-Veteran-Suicide-Prevention-Annual-Report-FINAL-508.pdf

van der Burgt, Margot C. A., Beekman, A. T. F., Hoogendoorn, A. W., Berkelmans, G., Franx, G., & Gilissen, R. (2021). The effect of local suicide prevention action networks (SUPRANET) on stigma, taboo and attitudes towards professional help-seeking: An exposure–response analysis. *Social Psychiatry and Psychiatric Epidemiology, 56*(12), 2199-2208. https://doi.org/10.1007/s00127-021-02078-w

Vohs, K. D., & Baumeister, R. F. (2000). Escaping the self consumes regulatory resources: A self-regulatory model of suicide. In T. Joiner & M. Rudd (Eds.), *Suicide science* (pp. 33–41). Kluwer Academic Publishers. https://doi.org/10.1007/0-306-47233-3_4

Wachter Morris, C. A., & Barrio Minton, C. A. (2012). Crisis in the curriculum? New counselors' crisis preparation, experiences, and self-efficacy. *Counselor Education and Supervision, 51*(4), 256–269. https://doi.org/10.1002/j.1556-6978.2012.00019.x

Wagner, G., Li, M., Sacchet, M.D., Richard-Devantoy, S., Turecki, G., Bär, K.-J., Gotlib, I.H., Walter, M., Jollant, F. (2021). Functional network alterations differently associated with

suicidal ideas and acts in depressed patients: An indirect support to the transition model. *Translational Psychiatry, 11*(100), doi: 10.1038/s41398-021-01232-x

Wallack, C. E. (2007). *Factors associated with suicidal ideation among American college students: A re-examination of the escape theory of suicide* (304867991) [Doctoral dissertation, University of Florida]. ProQuest Dissertations & Theses Global. https://www.proquest.com/docview/304867991

Wang, H., Yue, Z., & S, D. (2023). Challenges with using popular entertainment to address mental health: A content analysis of netflix series 13 reasons why controversy in mainstream news coverage. *Frontiers in Psychiatry, 14* https://doi.org/10.3389/fpsyt.2023.1214822

Watson, J. C., Lenz, A. S., Schmit, M. K., & Schmit, E. L. (2016). Calculating and reporting estimates of effect size in counseling outcome research. *Counseling Outcome Research and Evaluation, 7*(2), 111-123. https://doi.org/10.1177/2150137816660584

Wislocki, K., Jager-Hyman, S., Brady, M., Weiss, M., Schaechter, T., Khazanov, G., Young, S., & Becker-Haimes, E. (2023). Freely available training videos for suicide prevention: Scoping review. *JMIR Mental Health, 10*, e48404-e48404. https://doi.org/10.2196/48404

Witt, K., Potts, J., Hubers, A., Grunebaum, M. F., Murrough, J. W., Loo, C., Cipriani, A., & Hawton, K. (2020). Ketamine for suicidal ideation in adults with psychiatric disorders: A systematic review and meta-analysis of treatment trials. *Australian and New Zealand Journal of Psychiatry, 54*(1), 29. https://doi.org/10.1177/0004867419883341

Wolfe, K. L., Nakonezny, P. A., Owen, V. J., Rial, K. V., Moorehead, A. P., Kennard, B. D., & Emslie, G. J. (2017). Hopelessness as a predictor of suicidal ideation in depressed male and female adolescent youth. *Suicide & Life-Threatening Behavior, 49*(1), 253-263. https://doi.org/10.1111/sltb.12428

Wood, D. S., Ohri, F., Hudnall, G., & Cahoon, L. (2023). Suicide gatekeeper training outcomes in educational and religious settings. *Journal of Human Behavior in the Social Environment, 33*(2), 225-231. https://doi.org/10.1080/10911359.2022.2049414

World Health Organization. (2023). *The global health observatory: Suicide rates* (most recent data available from 2019) [Report]. https://www.who.int/data/gho/data/themes/mental-health/suicide-rates

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

Xu, J. Q., Kochanek, K. D., & Arias, E. (2022). *Mortality in the United States, 2021* (NCHS Data Brief No. 456). National Center for Health Statistics. https://doi.org/10.15620/cdc:122516

Yonemoto, N., Kawashima, Y., Endo, K., & Yamada, M. (2019). Gatekeeper training for suicidal behaviors: A systematic review. *Journal of Affective Disorders, 246*, 506-514. https://doi.org/10.1016/j.jad.2018.12.052

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., & Nikanfar, A.R. (2015). Design and implementation content validity study: development of an instrument for measuring patient-centered communication. Journal Caring Science 4(2):165

Appendix A: Search terms and results

Source	Search Terms	# of Results
	Databases	
ERIC	abstract(suicid*) AND abstract(gatekeep*)	52
	abstract(suicid*) AND abstract(self-efficacy)	35
	abstract(Kognito)	3
	abstract(LivingWorks); abstract(LivingWorks) AND (Faith); abstract(LivingWorks) AND abstract(Start)	0
	abstract(Applied Suicide Intervention Skills Training)	2
	abstract(Tell, Ask, Listen, and Keep Safe) OR abstract((safeTALK))	2
	abstract(Question Persuade Refer) OR abstract(QPR)	15
Nursing & Allied Health Premium	abstract(suicid*) AND abstract(gatekeep*)	88
	mainsubject(suicid*) AND mainsubject(train*)	310
	mainsubject(suicid*) AND mainsubject(self-efficacy)	83
	abstract(Kognito)	2
	abstract(LivingWorks)	6
	abstract(LivingWorks) AND (Faith); abstract(LivingWorks) AND abstract(Start)	0
	abstract(Applied Suicide Intervention Skills Training)	7
	abstract(Tell, Ask, Listen, and Keep Safe) OR abstract((safeTALK))	8
	abstract(Question Persuade Refer) OR abstract(QPR)	26
ProQuest Dissertations & Theses Global	abstract(suicid*) AND abstract(gatekeep*) AND abstract(train*)	47
	abstract(suicid*) AND abstract(gatekeep*) AND abstract(self-efficacy)	15
	abstract(Kognito)	4
	abstract(LivingWorks)	1
	abstract(Applied Suicide Intervention Skills Training)	8
	abstract(Tell, Ask, Listen, and Keep Safe) OR abstract((safeTALK))	4
	abstract(Question Persuade Refer) OR abstract(QPR)	35
PsycARTICLES	mainsubject(suicid*) AND mainsubject(gatekeep*)	6

	mainsubject(suicid*) AND mainsubject(train*)	93
	mainsubject(suicid*) AND mainsubject(self-efficacy)	16
	abstract(Kognito)	0
	abstract(LivingWorks)	0
	abstract(LivingWorks) AND (Faith); abstract(LivingWorks) AND abstract(Start)	2
	abstract(Applied Suicide Intervention Skills Training)	7
	abstract(Tell, Ask, Listen, and Keep Safe) OR abstract((safeTALK))	1
	abstract(Question Persuade Refer) OR abstract(QPR)	5
PsycINFO	mainsubject(suicid*) AND mainsubject(gatekeep*)	19
	mainsubject(suicid*) AND mainsubject(self-efficacy) AND mainsubject(train*)	32
	abstract(Kognito)	6
	abstract(LivingWorks)	1
	abstract(Applied Suicide Intervention Skills Training)	25
	abstract(Tell, Ask, Listen, and Keep Safe) OR abstract((safeTALK))	11
	abstract(Question Persuade Refer) OR abstract(QPR)	75
PubMed	(suicid*[Title/Abstract]) AND (gatekeep*[Title/Abstract]) AND (train*[Title/Abstract])	270
	((suicid*[Title/Abstract]) AND (gatekeep*[Title/Abstract]) AND (self-efficacy[Title/Abstract]))	55
	(Kognito[Title/Abstract])	8
	(LivingWorks[Title/Abstract])	3
	((Applied Suicide Intervention Skills Training[Title/Abstract]) OR (ASIST[Title/Abstract]))	76
	((Tell, Ask, Listen, and Keep Safe[Title/Abstract]) OR (SafeTALK[Title/Abstract]))	15
	((Question Persuade Refer[Title/Abstract]) OR (QPR[Title/Abstract]) AND (train*[Title/Abstract]))	27
The Social Sciences Citation Index	AB=(suicid*) AND AB=(gatekeep*) AND AB=(train*)	220
	AB=(suicid*) AND AB=(gatekeep*) AND AB=(self-efficacy)	50
	AB=(Kognito)	6
	AB=(LivingWorks)	2
	AB=(Applied Suicide Intervention Skills Training) OR (AB=(ASIST))	41

	AB=(Tell, Ask, Listen, and Keep Safe) OR (AB=(safeTALK))	15
	(AB=(Question Persuade Refer) OR (AB=(QPR)) AND AB=(train*))	41
	Databases Totals	**1881**
Websites		
Google Scholar	((suicid*[Title/Abstract]) AND (gatekeep*[Title/Abstract]) AND (train*[Title/Abstract]))	107
	((suicid*[Title/Abstract]) AND (gatekeep*[Title/Abstract]) AND (self-efficacy[Title/Abstract]))	79
	(Kognito[Title/Abstract])	18
	(LivingWorks[Title/Abstract])	12
	(Applied Suicide Intervention Skills Training[Title/Abstract] AND train*[Title/Abstract] AND gatekeep*[Title/Abstract]) OR (ASIST[Title/Abstract] AND train*[Title/Abstract] AND gatekeep*[Title/Abstract])	70
	((Tell, Ask, Listen, and Keep Safe[Title/Abstract]) OR (SafeTALK[Title/Abstract]))	3
	((Question Persuade Refer[Title/Abstract]) OR (QPR[Title/Abstract]))	35
	Websites Totals	**324**
Gatekeeper Training Websites		
Connect	no search terms used, whole site searched	3
Kognito	no search terms used, whole site searched	18
LivingWorks	no search terms used, whole site searched	7
QPR Institute	no search terms used, whole site searched	0
	Gatekeeper Training Websites Totals	**28**
Journals		
Archives of Suicide Research	(IssnAll:("1381-1118")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(gatekeep*))	9
	(IssnAll:("1381-1118")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(self-efficacy))	14
	(IssnAll:("1381-1118")) AND Kognito	0
	(IssnAll:("1381-1118")) AND LivingWorks	0
	(IssnAll:("1381-1118")) AND (ASIST)	5
	(IssnAll:("1381-1118")) AND (Tell, Ask, Listen, and Keep Safe)	5

	Query	Count
	(JN "Archives of Suicide Research") AND (Question Persuade Refer)	6
Crisis: The Journal of Crisis Intervention and Suicide Prevention	(IssnAll:("0227-5910")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(train*)) AND (SubjectTerms:(gatekeep*))	18
	(IssnAll:("0227-5910")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(self-efficacy))	10
	(IssnAll:("0227-5910")) AND (Kognito)	2
	(IssnAll:("0227-5910")) AND (LivingWorks)	7
	(IssnAll:("0227-5910")) AND (Abstract:(Applied Suicide Intervention Skills Training))	3
	(IssnAll:("0227-5910")) AND (Abstract:(Tell, Ask, Listen, and Keep Safe))	0
	(JN "Crisis: The Journal of Crisis Intervention and Suicide Prevention") AND (Question Persuade Refer)	3
Death Studies	(IssnAll:("0748-1187")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(gatekeep*))	2
	(IssnAll:("0748-1187")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(train*))	11
	(IssnAll:("0748-1187")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(self-efficacy))	5
	(IssnAll:("0748-1187")) AND (Kognito)	0
	(IssnAll:("0748-1187")) AND (LivingWorks)	5
	(IssnAll:("0748-1187")) AND (Abstract:(Applied Suicide Intervention Skills Training))	3
	(IssnAll:("0748-1187")) AND (Abstract:(Tell, Ask, Listen, and Keep Safe))	0
	(JN "Death Studies") AND (Question Persuade Refer)	0
Suicide and Life-Threatening Behavior	(IssnAll:("0363-0234")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(gatekeep*))	7
	(IssnAll:("0363-0234")) AND (SubjectTerms:(suicid*)) AND (SubjectTerms:(Self-efficacy))	22
	(IssnAll:("0363-0234")) AND (Kognito)	2
	(IssnAll:("0363-0234")) AND (LivingWorks)	12
	(IssnAll:("0363-0234")) AND (Abstract:(Applied Suicide Intervention Skills Training))	3
	(IssnAll:("0363-0234")) AND (Abstract:(Tell, Ask, Listen, and Keep Safe))	0
	(IssnAll:("0363-0234")) AND (Abstract:(Question Persuade Refer))	4
	Journal Totals	**158**

Systematic reviews and meta-analyses		
Kuntz, 2019 (meta-analysis)	no search terms used, references were searched	38
Mo et al., 2018 (systematic review)	no search terms used, references were searched	25
Yonemoto et al, 2019 (systematic review)	no search terms used, references were searched	13
	Systematic reviews and meta-analyses Totals	**76**
	GRAND TOTALS	**2467**

Appendix B: Coding manual

Dissertation - Suicide Gatekeeper Trainings: A Content Analysis

Survey Flow

Block: Article details (8 Questions)
Standard: Sample characteristics (30 Questions)
Standard: Training details (8 Questions)
Standard: Outcome measures (71 Questions)

Page Break

Start of Block: Article details

1. Who is filling this out?
   1.1. Jess (1)
   1.2. Scarlett (2)
   1.3. Dr. Prosek (3)
   1.4. Other (4) _____

2. Article title.
   _____

3. Author(s) name and et al.
   (example: Gerthe & Prosek OR Gerthe et al.)
   _____

4. Article publication year (example: 2024)
   _____

5. Type of publication
   5.1. Journal article
   5.2. Book/book chapter
   5.3. Dissertation/thesis
   5.4. Conference presentation
   5.5. Other _____

6. Journal title (or title of book/publisher, name of university for dissertation/thesis, name of conference)
   Please use APA format (example: Journal of Suicide and Life-Threatening Behavior OR The Pennsylvania State University)
   _____

7. Journal impact factor
   Example: *Suicide and Life-Threatening Behavior* has an impact factor of 3.2
   Use Journal Citation Reports database available through PSU library
   https://jcr-clarivate-com.ezaccess.libraries.psu.edu/jcr/home?app=jcr&Init=Yes&authCode=null&SrcApp=IC2LS

You may have to log into the PSU library

---

8. Study ID number
   If there are multiple studies that use different participants within one reference source, each study should be assigned the same root ID number with added ascending numeric decimals. For example, the same source may have Study 1 (32.1) and Study 2 (32.2).

   _____

End of Block: Article details

Start of Block: Sample characteristics

9. Country: Record the country in which the study was conducted

---

10. Type of study
    10.1. Randomized control trial (RCT)
    10.2. Control trial (specify if waitlist, treatment as usual, etc.)

    _____

    10.3. Quasi-experimental
    10.4. Mixed method (specify) _____
    10.5. Other (specify) _____
    10.6. Single Group

11. Sample type: Indicate which of the following best represents the sample:
    11.1. Medical professionals
    11.2. Medical students (undergrad or grads in nursing, dentistry, pharmacy, and medical school)
    11.3. First responders (police, EMT, fire fighters, etc.)
    11.4. Military personnel
    11.5. Social workers (including welfare workers)
    11.6. Social worker students (undergrad or grad in social work programs - BSW or MSW)
    11.7. K-12 teachers
    11.8. K-12 NON teacher staff and personnel
    11.9. K-12 students
    11.10.   K-12 parents
    11.11.   University personnel
    11.12.   University students (undergrad and graduate)
    11.13.   Mental health professionals
    11.14.   Mental Health students (undergrads or grads in psychology, counseling, etc.)
    11.15.   Faith/Religious/Spiritual workers/volunteers
    11.16.   Unknown
    11.17.   Other (specify) _____

12. Was the there a single training conducted or multiple trainings
    12.1. Single training
    12.2. Multiple trainings

13. Was there a control group in this study? Was it only an experiment group?
    13.1. Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.) _____
    13.2. Experiment group only, no control
    13.3. More than one experiment group, no control
    13.4. Unknown
    13.5. Other (specify) _____

Page Break

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

14. CONTROL GROUP *N*=

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

15. CONTROL GROUP sample age: Record the exact or approximated mean age of the sample reported at the beginning of the intervention. Exact mean ages may not be available, in which an estimate of the mean age may be derived from what information is provided in the study.

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

16. CONTROL GROUP sample age: Note if the sample mean age was given in the study or if the coders calculated it
    16.1. Given
    16.2. Had to calculate it (what information was given, how did you calculate the mean sample age?)
    _____

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

17. CONTROL GROUP sample age: Standard deviation

Page Break

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

✳

18. CONTROL GROUP sample **race**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **racial** identities:
    18.1. American Indian / Alaskan Native : _____
    18.2. Asian : _____
    18.3. Black / African American : _____
    18.4. Multiracial : _____
    18.5. Native Hawaiian / Other Pacific Islander : _____
    18.6. Not specified : _____
    18.7. Other (specify) : _____
    18.8. White/Caucasian : _____
    18.9. Total : _____

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

✱

19. CONTROL GROUP **ethnicity**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **ethnic** identities:
    19.1. Hispanic/Latinx : _____
    19.2. Non-Hispanic/Latinx : _____
    19.3. Not specified : _____
    19.4. Other (specify) : _____
    19.5. Total : _____

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

20. CONTROL GROUP sample predominant sex: Choose the option that best describes the predominant sex of the sample.
    20.1. More than 50% female
    20.2. Equal
    20.3. More than 50% male
    20.4. not reported

Display This Question:
If Was there a control group in this study? Was it only an experiment group? = Control group and experiment group(s) (Please list type of experimental group (waitlist, treatment as usual, etc.)

21. CONTROL GROUP voluntary Status: Indicate if the trainees were voluntary or mandated to take the training.
    21.1. Voluntary
    21.2. Mandated
    21.3. Unknown
    21.4. mixed (specify) _____

Page Break

22. EXPERIMENT GROUP #1 *N=*

23. EXPERIMENT GROUP #1 sample age: Record the exact or approximated mean age of the sample reported at the beginning of the intervention. Exact mean ages may not be available, in which an estimate of the mean age may be derived from what information is provided in the study.

    _____

24. EXPERIMENT GROUP #1 sample age: Note if the sample mean age was given in the study or if the coders calculated it
    24.1. Given (4)
    24.2. Had to calculate it (what information was given, how did you calculate the mean sample age?)
        (5) _____

25. EXPERIMENT GROUP #1 sample age: Standard deviation

_____

*

26. EXPERIMENT GROUP #1 sample **race**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **racial** identities:
    26.1. American Indian / Alaskan Native : _____
    26.2. Asian : _____
    26.3. Black / African American : _____
    26.4. Multiracial : _____
    26.5. Native Hawaiian / Other Pacific Islander : _____
    26.6. Not specified : _____
    26.7. Other (specify) : _____
    26.8. White/Caucasian : _____
    26.9. Total : _____

*

27. EXPERIMENT GROUP #1 **ethnicity**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **ethnic** identities:
    27.1. Hispanic/Latinx : _____
    27.2. Non-Hispanic/Latinx : _____
    27.3. Not specified : _____
    27.4. Other (specify) : _____
    27.5. Total : _____

28. EXPERIMENT GROUP #1 sample predominant sex: Choose the option that best describes the predominant sex of the sample.
    28.1. More than 50% female
    28.2. Equal
    28.3. More than 50% male
    28.4. Not reported

29. EXPERIMENT GROUP #1 voluntary Status: Indicate if the trainees were voluntary or mandated to take the training.
    29.1. Voluntary
    29.2. Mandated
    29.3. Unknown
    29.4. Mixed (specify) _____

30. Was there more than one experiment group?
    30.1. Yes
    30.2. No

Display This Question:
If Was there more than one experiment group? = Yes
31. EXPERIMENT GROUP #2 *N=*

Display This Question:
If Was there more than one experiment group? = Yes
32. EXPERIMENT GROUP #2 sample age: Record the exact or approximated mean age of the sample reported at the beginning of the intervention. Exact mean ages may not be available, in which an estimate of the mean age may be derived from what information is provided in the study.

Display This Question:
If Was there more than one experiment group? = Yes
33. EXPERIMENT GROUP #2 sample age: Note if the sample mean age was given in the study or if the coders calculated it
    33.1. Given
    33.2. Had to calculate it (what information was given, how did you calculate the mean sample age?)
    _____

Display This Question:
If Was there more than one experiment group? = Yes
34. EXPERIMENT GROUP #2 sample age: Standard deviation

Display This Question:
If Was there more than one experiment group? = Yes

 ✳

35. EXPERIMENT GROUP #2 sample **race**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **racial** identities:
    35.1. American Indian / Alaskan Native : _____
    35.2. Asian : _____
    35.3. Black / African American : _____
    35.4. Multiracial : _____
    35.5. Native Hawaiian / Other Pacific Islander : _____
    35.6. Not specified : _____
    35.7. Other (specify) : _____
    35.8. White/Caucasian : _____
    35.9. Total : _____

✱

36. EXPERIMENT GROUP #2 **ethnicity**: Using whole numbers (15% = 15, not 0.15), fill in the exact or an approximated percentage of the sample that identified with the following **ethnic** identities:
  36.1. Hispanic/Latinx : _____
  36.2. Non-Hispanic/Latinx : _____
  36.3. Not specified : _____
  36.4. Other (specify) : _____
  36.5. Total : _____

37. EXPERIMENT GROUP #2 sample predominant sex: Choose the option that best describes the predominant sex of the sample.
  37.1. More than 50% female
  37.2. Equal
  37.3. More than 50% male
  37.4. Not reported

38. EXPERIMENT GROUP #2 voluntary Status: Indicate if the trainees were voluntary or mandated to take the training.
  38.1. Voluntary
  38.2. Mandated
  38.3. Unknown

End of Block: Sample characteristics
Start of Block: Training details

39. Choose which training was utilized in the study.
  39.1. LivingWorks
  39.2. QPR
  39.3. Kognito
  39.4. Connect
  39.5. Other (specify) _____

40. Select the LivingWorks training that was utilized in the study
  40.1. LivingWorks: Start
  40.2. LivingWorks: Suicide Alertness for Everyone (SafeTALK)
  40.3. LivingWorks: Applied Suicide Intervention Skills Training (ASIST)
  40.4. LivingWorks: Faith
  40.5. Not reported

41. Select the QPR training that was utilized in the study
    41.1. QPR Gatekeeper Training (sometimes just called "QPR" or "Community Gatekeeper Training)
    41.2. Suicide Risk Assessment and Management Training Pro (QPRT 2.0)
    41.3. QPR for Primary Care Providers
    41.4. QPR Pro Gatekeeper Training
    41.5. QPR for Pharmacists
    41.6. QPR for Athletics
    41.7. Counseling Suicidal People: A Therapy of Hope
    41.8. QPR Screening and Referral Training
    41.9. Preventing Elder Suicide
    41.10.   QPR for First Responders: LEO, EMT, and Firefighters
    41.11.   QPR for School Health Professionals, Youth Workers, Mentors, and Advocates
    41.12.   QPR Gatekeeper Plus (2-hour edition)
    41.13.   QPR Lifespan Edition
    41.14.   QPR Youth and Young Adults
    41.15.   QPR Adult and Older Adult
    41.16.   QPR Veterans Edition
    41.17.   Not reported

42. Select the Kognito training that was utilized in the study
    42.1. At-Risk for Middle School Educators
    42.2. At-Risk for High School Educators
    42.3. At-Risk for College Students
    42.4. At-Risk for Faculty & Staff
    42.5. Not reported

43. Indicate the Connect training that was utilized in the study. For example, there is one primary Connect training, but there may have been significant adaptations for populations such as AI/AN, etc. In that case you would note that this Connect training was specially adapted for AI/AN population.

44. Training duration: Fill in the length of the training, in days, hours, minutes, or the metric used in the study (e.g., 20 minutes OR 16 hours over two consecutive days, etc.)

45. Training format: Choose how the training was conducted.
    Pro tip: If you cannot figure out if the training was in-person, search "pencil" to see if surveys were completed with paper and pencil (or similar). This will tell you the training was conducted in-person.

Please note that this only applies to the delivery of training content and material and does not include pre- or post- or follow up testing, etc.

45.1. In person

45.2. Online/digital platform SYNCHRONOUS

45.3. Online/digital platform ASYNCHRONOUS

45.4. hybrid

45.5. Not reported

46. Trained instructor: Indicate if the training was conducted by a trained facilitator.

46.1. No

46.2. Yes

46.3. Not reported

End of Block: Training details
Start of Block: Outcome measures

47. Measure 1: What is the name of the first identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2).

_____

48. Measure 1: What type of measure is this?

48.1. Rating Scale (Likert-type questions)

48.2. Single item

48.3. Multiple single items

48.4. True-False or Yes-No questions

48.5. Multiple choice questions

48.6. Interview

48.7. Essay(s)

48.8. Role play(s)/observations

48.9. Other (specify)

48.10.   Not specified in the unit

49. Measure 1: What was this used to measure? Please copy the exact text used in the study.
Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

50. Measure 1: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure.
Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

51. Measure 1: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test.
Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

52. Was there more than one measure used in this study?
    52.1. Yes
    52.2. No

Display This Question:
If Was there more than one measure used in this study? = Yes

53. Measure 2: What is the name of the second identified measure used in this study?Example: Suicide Intervention Response Inventory 2 (SIRI-2)

Display This Question:
If Was there more than one measure used in this study? = Yes

54. Measure 2: What type of measure is this?
    54.1. Rating Scale (Likert-type questions) (1)
    54.2. Single item (3)
    54.3. Multiple single items (4)
    54.4. True-False or Yes-No questions (5)
    54.5. Multiple choice questions (6)
    54.6. Interview (7)
    54.7. Essay(s) (8)
    54.8. Role play(s)/observations (9)
    54.9. Other (specify) (10)
    54.10.   Not specified in the unit (11)

Display This Question:
If Was there more than one measure used in this study? = Yes

55. Measure 2: What was this used to measure? Please copy the exact text used in the study.
    Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

Display This Question:
If Was there more than one measure used in this study? = Yes

56. Measure 2: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure.
    Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

Display This Question:
If Was there more than one measure used in this study? = Yes

57. Measure 2: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test.
    Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

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58. Were there more than two measures used in this study?
   58.1. Yes (1)
   58.2. No (2)

Page Break

59. Measure 3: What is the name of the third identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

60. Measure 3: What type of measure is this?
   60.1. Rating Scale (Likert-type questions) (1)
   60.2. Single item (3)
   60.3. Multiple single items (4)
   60.4. True-False or Yes-No questions (5)
   60.5. Multiple choice questions (6)
   60.6. Interview (7)
   60.7. Essay(s) (8)
   60.8. Role play(s)/observations (9)
   60.9. Other (specify) (10)
   60.10.   Not specified in the unit (11)

61. Measure 3: What was this used to measure? Please copy the exact text used in the study.
   Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

62. Measure 3: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

63. Measure 3: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

64. Were there more than three measures used in this study?
    64.1. Yes (1)
    64.2. No (2)

Page Break

65. Measure 4: What is the name of the fourth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

66. Measure 4: What type of measure is this?
    66.1. Rating Scale (Likert-type questions) (1)
    66.2. Single item (3)
    66.3. Multiple single items (4)
    66.4. True-False or Yes-No questions (5)
    66.5. Multiple choice questions (6)
    66.6. Interview (7)
    66.7. Essay(s) (8)
    66.8. Role play(s)/observations (9)
    66.9. Other (specify) (10)
    66.10.   Not specified in the unit (11)

67. Measure 4: What was this used to measure? Please copy the exact text used in the study.
    Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

68. Measure 4: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

69. Measure 4: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

70. Were there more than four measures used in this study?
    70.1. Yes (1)
    70.2. No (2)

71. Measure 5: What is the name of the fifth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

72. Measure 5: What type of measure is this?
    72.1. Rating Scale (Likert-type questions) (1)
    72.2. Single item (3)
    72.3. Multiple single items (4)
    72.4. True-False or Yes-No questions (5)
    72.5. Multiple choice questions (6)
    72.6. Interview (7)
    72.7. Essay(s) (8)
    72.8. Role play(s)/observations (9)
    72.9. Other (specify) (10)
    72.10.   Not specified in the unit (11)

73. Measure 5: What was this used to measure? Please copy the exact text used in the study.
    Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

74. Measure 5: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

75. Measure 5: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

76. Were there more than five measures used in this study?

76.1. Yes (1)

76.2. No (2)

Page Break

77. Measure 6: What is the name of the sixth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

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78. Measure 6: What type of measure is this?

78.1. Rating Scale (Likert-type questions) (1)

78.2. Single item (3)

78.3. Multiple single items (4)

78.4. True-False or Yes-No questions (5)

78.5. Multiple choice questions (6)

78.6. Interview (7)

78.7. Essay(s) (8)

78.8. Role play(s)/observations (9)

78.9. Other (specify) (10)

78.10.   Not specified in the unit (11)

79. Measure 6: What was this used to measure? Please copy the exact text used in the study. Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

80. Measure 6: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

81. Measure 6: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

82. Were there more than six measures used in this study?

    82.1. Yes (1)

    82.2. No (2)

Page Break

83. Measure 7: What is the name of the seventh identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

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84. Measure 7: What type of measure is this?

    84.1. Rating Scale (Likert-type questions) (1)

    84.2. Single item (3)

    84.3. Multiple single items (4)

    84.4. True-False or Yes-No questions (5)

    84.5. Multiple choice questions (6)

    84.6. Interview (7)

    84.7. Essay(s) (8)

    84.8. Role play(s)/observations (9)

    84.9. Other (specify) (10)

    84.10.   Not specified in the unit (11)

85. Measure 7: What was this used to measure? Please copy the exact text used in the study. Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

86. Measure 7: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

87. Measure 7: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

88. Were there more than seven measures used in this study?
    88.1. Yes (1)
    88.2. No (2)

Page Break

89. Measure 8: What is the name of the eighth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

90. Measure 8: What type of measure is this?
    90.1. Rating Scale (Likert-type questions) (1)
    90.2. Single item (3)
    90.3. Multiple single items (4)
    90.4. True-False or Yes-No questions (5)
    90.5. Multiple choice questions (6)
    90.6. Interview (7)
    90.7. Essay(s) (8)
    90.8. Role play(s)/observations (9)
    90.9. Other (specify) (10)
    90.10.   Not specified in the unit (11)

91. Measure 8: What was this used to measure? Please copy the exact text used in the study.
    Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

92. Measure 8: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

93. Measure 8: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

94. Were there more than eight measures used in this study?

    94.1. Yes (1)

    94.2. No (2)

Page Break

95. Measure 9: What is the name of the ninth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

96. Measure 9: What type of measure is this?

    96.1. Rating Scale (Likert-type questions) (1)

    96.2. Single item (3)

    96.3. Multiple single items (4)

    96.4. True-False or Yes-No questions (5)

    96.5. Multiple choice questions (6)

    96.6. Interview (7)

    96.7. Essay(s) (8)

    96.8. Role play(s)/observations (9)

    96.9. Other (specify) (10)

    96.10.   Not specified in the unit (11)

97. Measure 9: What was this used to measure? Please copy the exact text used in the study.
Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

98. Measure 9: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

99. Measure 9: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

100. Were there more than nine measures used in this study?
- 101. Yes (1)
- 102. No (2)

Page Break

103. Measure 10: What is the name of the tenth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

104. Measure 10: What type of measure is this?
- 104.1. Rating Scale (Likert-type questions) (1)
- 104.2. Single item (3)
- 104.3. Multiple single items (4)
- 104.4. True-False or Yes-No questions (5)
- 104.5. Multiple choice questions (6)
- 104.6. Interview (7)
- 104.7. Essay(s) (8)
- 104.8. Role play(s)/observations (9)
- 104.9. Other (specify) (10)
- 104.10. Not specified in the unit (11)

105. Measure 10: What was this used to measure? Please copy the exact text used in the study. Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

106. Measure 10: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

107. Measure 10: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

108. Were there more than ten measures used in this study?
    108.1.   Yes (1)
    108.2.   No (2)

109. Measure 11: What is the name of the eleventh identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

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110. Measure 11: What type of measure is this?
    110.1.   Rating Scale (Likert-type questions) (1)
    110.2.   Single item (3)
    110.3.   Multiple single items (4)
    110.4.   True-False or Yes-No questions (5)
    110.5.   Multiple choice questions (6)
    110.6.   Interview (7)
    110.7.   Essay(s) (8)
    110.8.   Role play(s)/observations (9)
    110.9.   Other (specify) (10)
    110.10.   Not specified in the unit (11)

111. Measure 11: What was this used to measure? Please copy the exact text used in the study.
Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

112. Measure 11: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)
113.

114. Measure 11: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)
115.

116. Were there more than eleven measures used in this study?
    116.1.   Yes (1)
    116.2.   No (2)

Page Break

117. Measure 12: What is the name of the twelfth identified measure used in this study? Example: Suicide Intervention Response Inventory 2 (SIRI-2)

118. Measure 12: What type of measure is this?
    118.1.   Rating Scale (Likert-type questions) (1)
    118.2.   Single item (3)
    118.3.   Multiple single items (4)
    118.4.   True-False or Yes-No questions (5)
    118.5.   Multiple choice questions (6)
    118.6.   Interview (7)
    118.7.   Essay(s) (8)
    118.8.   Role play(s)/observations (9)
    118.9.   Other (specify) (10)
    118.10.   Not specified in the unit (11)

119. Measure 12: What was this used to measure? Please copy the exact text used in the study. Example: "The SIRI-2 was used to measure training knowledge of appropriate responses to a person at risk of suicide"

120. Measure 12: Copy and paste the information about the results of this measure (pre-test, post-test, follow up test, change, direction, etc., anything reported about the results for this measure. Also, please be sure to separate out if there was more than one group (control and experiment, multiple experiment, etc.)

121. Measure 12: What was the p value (if provided)? Please note if this is pre- to post-test, pre-test to follow-up test, or post-test to follow-up test. Also, please be sure to separate out if there was more than one group's p value reported (control and experiment, multiple experiment, etc.)

End of Block: Outcome measures

Appendix C: Units overview

Reference, title, provider, training, professional sector

Reference	Article Title	Training Developer	Specific Training	Trainee Profession(s)
Adams et al., 2018	RU OK: Evaluating the Effectiveness of a Gatekeeper Training Program	QPR	QPR Gatekeeper Training	University personnel,University students (undergrad and graduate)
Aldrich et al., 2018	The effectiveness of QPR suicide prevention training	QPR	QPR Gatekeeper Training	University personnel,University students (undergrad and graduate)
Bean & Baber, 2011 (Adult)	Connect: An Effective Community-Based Youth Suicide Prevention Program	Connect	Connect Gatekeeper Training	Medical professionals,First responders (police, EMT, fire fighters, etc.),K-12 teachers,K-12 NON teacher staff and personnel,Mental health professionals
Bean & Baber, 2011 (Youth)	Connect: An Effective Community-Based Youth Suicide Prevention Program	Connect	Connect Gatekeeper Training	K-12 students
Bell, 2015	Examining the effectiveness of gatekeeper training in suicide prevention	QPR	QPR Gatekeeper Training	University personnel,University students (undergrad and graduate)
Bradley & Kendall, 2019	Training Teachers to Identify and Refer At-Risk Students Through Computer Simulation	Kognito	At-Risk for Middle School Educators	K-12 teachers,University students (undergrad and graduate)
Cascamo Jr., 2013	Gatekeeper Suicide Prevention Training and its Impact on Attitudes Toward Help Seeking	QPR	QPR Gatekeeper Training	University students (undergrad and graduate)
Cerel et al., 2012	A State's Approach to Suicide Prevention Awareness: Gatekeeper Training in Kentucky	QPR	QPR Gatekeeper Training	Medical professionals,First responders (police, EMT, fire fighters, etc.),K-12 teachers,University personnel,University students (undergrad and graduate),Mental health professionals,Faith/Religious/Spiritual workers/vonunteers,Other (Correction staff and community members)

Coleman et al., 2019	Kognito's Avatar-Based Suicide Prevention Training for College Students: Results of a Randomized Controlled Trial and a Naturalistic Evaluation	Kognito	At-Risk for College Students	Social worker students (undergrad or grad in social work programs - BSW or MSW),University students (undergrad and graduate)
Cross et al., 2007	Proximate Outcomes of Gatekeeper Training for Suicide Prevention in the Workplace	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	University personnel
Davis, 2019	Applied suicide intervention skills training program: an evaluation of school counselor preparedness for immediate suicide intervention	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	K-12 NON teacher staff and personnel,Other (specifically school counselors)
Duong-Killer, 2015	Suicide prevention training: Its impact on college students of color	QPR	QPR Gatekeeper Training	University students (undergrad and graduate)
Ewell Foster et al., 2017	Identification, Response, and Referral of Suicidal Youth Following Applied Suicide Intervention Skills Training	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Medical professionals,First responders (police, EMT, fire fighters, etc.),Social workers (including welfare workers),K-12 teachers,K-12 NON teacher staff and personnel,University personnel,Mental health professionals,Other (specify)
Godoy Garraza et al., 2021	The Effectiveness of Active Learning Strategies in Gatekeeper Training on Behavioral Outcomes	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal AND Other changes specific to Pharamcy students	Medical professionals,First responders (police, EMT, fire fighters, etc.),Social workers (including welfare workers),K-12 teachers,K-12 NON teacher staff and personnel,University personnel,Mental health professionals,Other (Other community setting)
Goldstein, 2017	Increasing perceived self-efficacy of accelerated bsn students in suicide assessment and management: is online training a viable option?	QPR	QPR Gatekeeper Training	Medical students (undergrad or grads in nursing, dentistry, pharmacy, and medical school)

Gryglewicz et al., 2017	Online Suicide Risk Assessment and Management Training	QPR	Suicide Risk Assessment and Management Training Pro (QPRT)	Mental health professionals
Hempel Rhudy, 2019	Declarative knowledge, perceived knowledge, and suicide prevention behaviors: question, persuade, refer	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	Other (Individuals who attended QPR trainings across Kentucky)
Hickey, 2022	An Evaluation of a Public Health Intervention Aimed at Increasing Knowledge and Improving Behaviors Surrounding Suicide Prevention among Genesee Health System Staff and Genesee County Community Members	LivingWorks	LivingWorks: Start	Medical professionals,First responders (police, EMT, fire fighters, etc.),Military personnel,K-12 teachers,K-12 NON teacher staff and personnel,University personnel,Mental health professionals,Faith/Religious/Spiritual workers/vonunteers,Other (Business Science and Professionals and Production Construction Extraction Maintenance and Transportation)
Indelicato et al., 2011	Outcomes of a Suicide Prevention Gatekeeper Training on a University Campus	QPR	QPR Gatekeeper Training	University personnel,University students (undergrad and graduate)
Jacobson et al., 2012	Randomized Trial of Suicide Gatekeeper Training for Social Work Students	QPR	QPR Gatekeeper Training	Social worker students (undergrad or grad in social work programs - BSW or MSW)
Johnson & Parson, 2012	Adolescent Suicide Prevention in a School Setting	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	K-12 teachers,K-12 NON teacher staff and personnel,K-12 students
Kahsay et al., 2020	Suicide Prevention Training in the Child Welfare Workforce: Knowledge, Attitudes, and Practice Patterns Prior to and Following safeTALK Training	LivingWorks	LivingWorks: Suicide Alertness for Everyone (SafeTALK)	Social workers (including welfare workers),Other (adoption staff, foster parents, state level administration)
Keller et al., 2009	Tennessee Lives Count: Statewide Gatekeeper Training for Youth Suicide Prevention	QPR	QPR ADAPTED QPR, not specified	Medical professionals,Social workers (including welfare workers),K-12 teachers,Other (juvinile justice)

Magness et al., 2023	Changes in Gatekeeper Beliefs Following ASIST and Relation to Subsequent Gatekeeper Suicide Prevention Behaviors	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Medical professionals,First responders (police, EMT, fire fighters, etc.),Social workers (including welfare workers),K-12 teachers,University personnel,Mental health professionals,Other (Juvenile justice/probation, Tribal services/tribal government, other community settings)
Matthieu & Swensen, 2014	Suicide Prevention Training Program for Gatekeepers Working in Community Hospice Settings	QPR	QPR Gatekeeper Training	Social workers (including welfare workers),Other (community hospice settings (mostly social workers))
Matthieu et al., 2008	Evaluation of Gatekeeper Training for Suicide Prevention in Veterans	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	Military personnel,Mental health professionals
Mitchell et al., 2013	Evaluating Question, Persuade, Refer (QPR) Suicide Prevention Training in a College Setting	QPR	QPR Gatekeeper Training	University personnel,University students (undergrad and graduate)
Mize et al., 2022	Suicide intervention among aging network providers	LivingWorks	LivingWorks ADPATED: Applied Suicide Intervention Skills Training (ASIST)	Other (nutrition services volunteers and providers in Aging Services Network)
Mueller-Williams et al., 2023 (ASIST)	Evaluating the Effectiveness of Suicide Prevention Gatekeeper Trainings as Part of an American Indian/Alaska Native Youth Suicide Prevention Program	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Other (American Indian/Alaska Native Youth Suicide Prevention Program)
Mueller-Williams et al., 2023 (SafeTALK)	Evaluating the Effectiveness of Suicide Prevention Gatekeeper Trainings as Part of an American Indian/Alaska Native Youth Suicide Prevention Program	LivingWorks	LivingWorks: Suicide Alertness for Everyone (SafeTALK)	Other (American Indian/Alaska Native Youth Suicide Prevention Program)
Osteen et al., 2014	Suicide Prevention in Social Work Education: How Prepared Are Social Work Students?	QPR	QPR Gatekeeper Training	Social worker students (undergrad or grad in social work programs - BSW or MSW)

Osteen et al., 2021	Suicide intervention training with law enforcement officers	QPR	QPR for First Responders: LEO, EMT, and Firefighters	First responders (police, EMT, fire fighters, etc.)
Painter et al., 2018	Pharmacist training in suicide prevention	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	Medical professionals,Other ((exclusively pharmacists))
Rein et al., 2018	Evaluation of an avatar-based training program to promote suicide prevention awareness in a college setting	Kognito	At-Risk for College Students,At-Risk for Faculty & Staff	University personnel,University students (undergrad and graduate)
Reis & Cornell, 2008	An Evaluation of Suicide Gatekeeper Training for School Counselors and Teachers	QPR	QPR Gatekeeper Training	K-12 teachers,K-12 NON teacher staff and personnel
Robinson-Link et al., 2020	Is Gatekeeper Training Enough for Suicide Prevention?	Kognito	At-Risk for Middle School Educators,At-Risk for High School Educators	K-12 teachers
Samoulis et al., 2020	Evaluation of a Peer-Led Implementation of a Suicide Prevention Gatekeeper Training Program for College Students	QPR	QPR Gatekeeper Training	University students (undergrad and graduate)
Shannonhouse et al., 2017a	Suicide intervention training for college staff: Program evaluation and intervention skill measurement	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	University personnel
Shannonhouse et al., 2017b	Suicide Intervention Training for K–12 Schools: A Quasi-Experimental Study on ASIST	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	K-12 teachers,K-12 NON teacher staff and personnel,Other (school counselors)
Shannonhouse et al., 2018	Suicide Intervention Training for Counselor Trainees: A Quasi-Experimental Study on Skill Retention	LivingWorks	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	Mental Health students (undergrads or grads in psychology, counseling, etc.)
Smith-Millman et al., 2022	Effectiveness of an online suicide prevention program for college faculty and students	Kognito	At-Risk for College Students,At-Risk for Faculty & Staff	University personnel,University students (undergrad and graduate)

Timmons-Mitchell et al., 2019	Virtual Role-play: Middle School Educators Addressing Student Mental Health	Kognito	At-Risk for Middle School Educators	K-12 teachers,K-12 NON teacher staff and personnel
Tompkins et al., 2009	Does a Gatekeeper Suicide Prevention Program Work in a School Does a Gatekeeper Suicide Prevention Program Work in a School Setting? Evaluating Training Outcome and Moderators of Setting? Evaluating Training Outcome and Moderators of Effectiveness Effectiveness	QPR	QPR Gatekeeper Training	K-12 teachers,K-12 NON teacher staff and personnel
Tsong et al., 2019	Suicide Prevention Program on a Diverse College Campus: Examining the Effectiveness of a Peer-to-Peer Model	QPR	QPR Gatekeeper Training	University students (undergrad and graduate),Mental Health students (undergrads or grads in psychology, counseling, etc.),Other (Peer educators were recruited from counseling-related fields such as psychology, social work, and marriage and family therapy programs. E-mails with the job description for the peer educator positions were sent to program coordinators. E-mail announcements were also sent to student groups on campus such as Psi Chi (psychology club) and Hermanas Unidas (a Latina student organization), other peer programs such as Peer Health Educators at the Health Resource Center, and student leadership groups such as the President Scholars Program.)
Wood et al., 2023	Suicide gatekeeper training outcomes in educational and religious settings	QPR	QPR ADAPTED QPR Not reported	Medical professionals,First responders (police, EMT, fire fighters, etc.),Social workers (including welfare workers),Mental health professionals,Faith/Religious/Spiritual workers/vonunteers,Other (Community members, family members (does not specify if this is parents or other), Government workers, Self-advocates (no further detail available), Educators and Students (does not specify level).)

Wyman et al., 2008	Randomized Trial of a Gatekeeper Program for Suicide Prevention: 1-year Impact on Secondary School Staff	QPR	QPR Gatekeeper Training	K-12 teachers,K-12 NON teacher staff and personnel
Yeates, 2018	Examining the effectiveness of an online suicide prevention gatekeeper training	Kognito	At-Risk for College Students,At-Risk for Faculty & Staff	University personnel,University students (undergrad and graduate)
	Evaluation of a Question Persuade Refer (QPR) training for student pharmacists	QPR	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal AND Educational Session	Medical students (undergrad or grads in nursing, dentistry, pharmacy, and medical school)

Appendix D: Median *N* per training

Reference	Specific Training	Pre-post Median	Trained	Pre-post	Follow up	Follow up timefraome
Coleman et al., 2019	At-Risk for College Students	33		33	24	2 mos
Rein et al., 2018	At-Risk for College Students,At-Risk for Faculty & Staff	1,552		2,727		
Smith-Millman et al., 2022			8649		310	
Yeates, 2018			650	377	102	6 mos
Bradley & Kendall, 2019	At-Risk for Middle School Educators	16862		20		
Timmons-Mitchell et al., 2019			43,257	33,704	3839	3 mos
Robinson-Link et al., 2020	At-Risk for Middle School Educators,At-Risk for High School Educators	3807		3807	781	3 ms
	Kognito Pre-post Median	**1552**				
Bean & Baber (2011, Pt 1 - Adults)	Connect Gatekeeper Training	426		648		
Bean & Baber (2011, Pt 2 - Youth)				204		
	Connect Pre-post Median	**426**				
Mize et al., 2022				93		
Davis, 2019				20		
Ewell Foster et al., 2017	LivingWorks: Applied Suicide Intervention Skills Training (ASIST)	93	434		285	6 mos
Magness et al., 2023				434		
Mueller-Williams et al. (2023, Pt. 1 - ASIST)				404	233	6 mos
Shannonhouse et al., 2017				50		

Study	Program					
Shannonhouse et al., 2017				104		
Shannonhouse et al., 2018				72	28	3 mos
Hickey, 2022	LivingWorks: Start	736		736		
Kahsay et al., 2020	LivingWorks: Suicide Alertness for Everyone (SafeTALK)	312.5	277	248	103	6 mos
Mueller-Williams et al. (2023, Pt. 2 - SafeTALK)				377	212	6 mos
	LivingWorks Pre-post Median	**176**				
Cross et al., 2007	QPR ADAPTED QPR Gatekeeper Training - Role Play/behavioral Rehearsal	94		76		
Hempel Rhudy, 2019				152	51	3 mos
Johnson & Parson, 2012				36		
Matthieu et al., 2008				602		
Painter et al., 2018			103	77		
				111		
Godoy Garraza et al., 2021			661		162	3 ms
Wood et al., 2023	QPR ADAPTED QPR Not reported	1445		1445		
Keller et al., 2009			14,000+		416	6 mos
Osteen et al., 2021	QPR for First Responders: LEO, EMT, and Firefighters	95	108	95	48	3 mos
Adams et al., 2018	QPR Gatekeeper Training	161			41	6 mos
Aldrich et al., 2018			108	79		
Bell, 2015				413	413	3 mos
Cascamo Jr., 2013				108		
Cerel et al., 2012				3958		
Duong-Killer, 2015				502		
Goldstein, 2017				10		
Indelicato et al., 2011			1374	387	247	3 mos

Jacobson et al., 2012				35	30	6 mos
Matthieu & Swensen, 2014				39		
Mitchell et al., 2013			1,644	911	203	3-6 mos
Osteen et al., 2014				73		
Reis & Cornell, 2008			1,081	238		
Samoulis et al., 2020			182	161		
Tompkins et al., 2009				78	18	3 mos
Tsong et al., 2019			479	477		
Wyman et al., 2008					122	12 mos
Gryglewicz et al., 2017	Suicide Risk Assessment and Management Training Pro (QPRT)	178		178		
	QPR Pre-post Median	**131.5**				
		Total Medians	**564.5**	**169.5**	**162**	

Appendix E: Predominant sex per training

Provider	More than 50% female		More than 50% male		Not reported		Reported gender diversity	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48
LivingWorks	10	20.8%	0		1	2.1%	0	
QPR	22	45.8%	2	4.2%	4	8.3%	0	
Kognito	6	12.5%	0		1	2.1%	0	
Connect					2	4.2%		
Total	38	79.2%	2	4.2%	8	16.7%	0	

LivingWorks	More than 50% female			More than 50% male			Not reported			Reported gender diversity		
	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11
Start	1	2.1%	9.1%									
SafeTALK	2	4.2%	18.2%									
ASIST	7	14.6%	63.6%				1	2.1%	9.1%			
Total	10	20.8%	90.9%	0			1	2.1%	9.1%	0		

QPR	More than 50% female			More than 50% male			Not reported			Reported gender diversity		
	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28
Standard QPR Gatekeeper Training	15	31.3%	53.6%				2	4.2%	7.1%			
Adapted QPR Gatekeeper Training	5	10.4%	17.9%	1	2.1%	3.6%	1	2.1%	3.6%			
Adapted QPR training not specified	1	2.1%	3.6%				1	2.1%	3.6%			
QPR for First Responders				1	2.1%	3.6%						
QPRT	1	2.1%	3.6%									
Total	22	45.8%	78.6%	2	4.2%	7.1%	4	8.3%	14.3%	0		

Kognito	More than 50% female			More than 50% male			Not reported			Reported gender diversity		
	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$
At-Risk for College Students	1	2.1%	14.3%									
At-Risk for College Students AND At-Risk for Faculty & Staff	2	4.2%	28.6%				1	2.1%	14.3%			
At-Risk for Middle School Educators	2	4.2%	28.6%									
At-Risk for Middle School Educators AND At-Risk for High School Educators	1	2.1%	14.3%									
Total	6	12.5%	85.7%	0			1	2.1%	14.3%	0		

Note. $N = 48$ refers to the total number of units in this content analysis. $n =$ refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Appendix F: Race and ethnicity per training

Provider	Reported race only		Reported ethnicity only		Reported both race and ethnicity		Reported conflation of race and ethnicity		Did not reported race or ethnicity		more than 70% white		Majority minoritized race or ethnicity	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48
LivingWorks	0		0		3	6.3%	6	12.5%	2	4.2%	4	8.3%	1	2.1%
QPR	5	10.4%	0		3	6.3%	12	25.0%	3	6.3%	14	29.2%	3	6.3%
Kognito	1	2.1%	0		1	2.1%	4	8.3%	1	2.1%	4	8.3%	1	2.1%
Connect									2	4.2%				
Total	6	12.5%	0		7	14.6%	22	45.8%	8	16.7%	22	45.8%	5	10.4%

LivingWorks	Reported race only			Reported ethnicity only			Reported both race and ethnicity			Reported conflation of race and ethnicity			Did not reported race or ethnicity			more than 70% white			Majority minoritized race or ethnicity		
	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11
Start													1	2.1%	9.1%						
SafeTALK										2	4.2%	18.2%									
ASIST							3	6.3%	27.3%	4	8.3%	36.4%	1	2.1%	9.1%	4	8.3%	36.4%	1	2.1%	9.1%
Total	0			0			3	6.3%	27.3%	6	12.5%	54.5%	2	4.2%	18.2%	4	8.3%	36.4%	1	2.1%	9.1%

QPR	Reported race only			Reported ethnicity only			Reported both race and ethnicity			Reported conflation of race and ethnicity			Did not reported race or ethnicity			more than 70% white			Majority minoritized race or ethnicity		
	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28
Standard QPR Gatekeeper Training	4	8.3%	14.3%							8	16.7%	28.6%				9	18.8%	32.1%	1	2.1%	3.6%
Adapted QPR Gatekeeper Training							2	4.2%	7.1%	3	6.3%	10.7%	2	4.2%	7.1%	4	8.3%	14.3%	1	2.1%	3.6%
Adapted QPR training not specified	1	2.1%	3.6%										1	2.1%	3.6%	1	2.1%	3.6%			
QPR for First Responders										1	2.1%	3.6%							1	2.1%	3.6%
QPRT							1	2.1%	3.6%												
Total	5	10.4%	17.9%	0			3	6.3%	10.7%	12	25.0%	42.9%	3	6.3%	10.7%	14	29.2%	50.0%	3	6.3%	10.7%

Note. N = 48 refers to the total number of units in this content analysis. n = refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Kognito	Reported race only			Reported ethnicity only			Reported both race and ethnicity			Reported conflation of race and ethnicity			Did not reported race or ethnicity			more than 70% white			Majority minoritized race or ethnicity		
	#	$N=48$	$n=7$	#	$N=48$	$n=7$	#	$N=48$	$n=7$	#	$N=48$	$n=7$	#	$N=48$	$n=7$	#	$N=48$	$n=7$	#	$N=48$	$n=7$
At-Risk for College Students										1	2.1%	12.5%							1	2.1%	12.5%
At-Risk for College Students AND At-Risk for Faculty & Staff	1	2.1%	12.5%				1	2.1%	12.5%				1	2.1%	12.5%	2	4.2%	25.0%			
At-Risk for Middle School Educators										2	4.2%	25.0%				1	2.1%	12.5%			
At-Risk for Middle School Educators AND At-Risk for High School Educators										1	2.1%	12.5%				1	2.1%	12.5%			
Total	1	2.1%	12.5%	0			1	2.1%	12.5%	4	8.3%	50.0%	1	2.1%	12.5%	4	8.3%	50.0%	1	2.1%	12.5%

Note. $N = 48$ refers to the total number of units in this content analysis. $n =$ refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Appendix G: Professional sector of trainees per training

Table 1. Provider (N = 48)

Provider	Education Sector — University #	University N=48	Education Sector — K-12 #	K-12 N=48	Health Care Sector — Medical #	Medical N=48	Mental Health #	Mental Health N=48	Social Services Sector — Child & Family Services #	Child & Family Services N=48	Indigenous & Tribal Services #	Indigenous & Tribal Services N=48	Government #	Government N=48	First responders #	First responders N=48	Religion & Faith #	Religion & Faith N=48	Military #	Military N=48	Other #	Other N=48	Not reported #	Not reported N=48
LivingWorks	5	10.4%	5	10.4%	5	10.4%	5	10.4%	4	8.3%	2	4.2%	0		3	6.3%	1	2.1%	1	2.1%	3	6.3%	0	
QPR	16	33.3%	8	16.7%	8	16.7%	6	12.5%	7	14.6%	0		1	2.1%	4	8.3%	2	4.2%	1	2.1%	1	2.1%	0	
Kognito	4	8.3%	3	6.3%	0		0		1	2.1%	0		0		0		0		0		0		0	
Connect			2	4.2%	1	2.1%	1	2.1%							1	2.1%								
Total	25	52.1%	18	37.5%	14	29.2%	12	25.0%	12	25.0%	2	4.2%	1	2.1%	8	16.7%	3	6.3%	2	4.2%	4	8.3%	0	

Table 2. LivingWorks (N = 48, n = 11)

LivingWorks	University #	N=48	n=11	K-12 #	N=48	n=11	Medical #	N=48	n=11	Mental Health #	N=48	n=11	Child & Family Services #	N=48	n=11	Indigenous & Tribal Services #	N=48	n=11	Government #	N=48	n=11	First responders #	N=48	n=11	Religion & Faith #	N=48	n=11	Military #	N=48	n=11	Other #	N=48	n=11	Not reported #	N=48	n=11
Start	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%							1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%			
safeTALK							1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%																					
ASIST	4	8.3%	36.4%	4	8.3%	36.4%	3	6.3%	27.3%	3	6.3%	27.3%	2	4.2%	18.2%	2	4.2%	18.2%				2	4.2%	18.2%							2	4.2%	18.2%			
Total	5	10.4%	45.5%	5	10.4%	45.5%	5	10.4%	45.5%	5	10.4%	45.5%	4	8.3%	36.4%	2	4.2%	18.2%	0			3	6.3%	27.3%	1	2.1%	9.1%	1	2.1%	9.1%	3	6.3%	27.3%	0		

Table 3. QPR (N = 48, n = 28)

QPR	University #	N=48	n=28	K-12 #	N=48	n=28	Medical #	N=48	n=28	Mental Health #	N=48	n=28	Child & Family Services #	N=48	n=28	Indigenous & Tribal Services #	N=48	n=28	Government #	N=48	n=28	First responders #	N=48	n=28	Religion & Faith #	N=48	n=28	Military #	N=48	n=28	Other #	N=48	n=28	Not reported #	N=48	n=28
Standard QPR Gatekeeper Training	13	27.1%	46.4%	4	8.3%	14.3%	3	6.3%	10.7%	2	4.2%	7.1%	4	8.3%	14.3%							1	2.1%	3.6%	1	2.1%	3.6%									
Adapted QPR Gatekeeper Training	3	6.3%	10.7%	2	4.2%	7.1%	3	6.3%	10.7%	2	4.2%	7.1%	1	2.1%	3.6%							1	2.1%	3.6%				1	2.1%	3.6%	1	2.1%	3.6%			
Adapted QPR training not specified				2	4.2%	7.1%	2	4.2%	7.1%	1	2.1%	3.6%	2	4.2%	7.1%				1	2.1%	3.6%	1	2.1%	3.6%	1	2.1%	3.6%									
QPR for First Responders																						1	2.1%	3.6%												
QPRT										1	2.1%	3.6%																								
Total	16	33.3%	57.1%	8	16.7%	28.6%	8	16.7%	28.6%	6	12.5%	21.4%	7	14.6%	25.0%	0			1	2.1%	3.6%	4	8.3%	14.3%	2	4.2%	7.1%	1	2.1%	3.6%	1	2.1%	3.6%	0		

Table 4. Kognito (N = 48, n = 7)

Kognito	University #	N=48	n=7	K-12 #	N=48	n=7	Medical #	N=48	n=7	Mental Health #	N=48	n=7	Child & Family Services #	N=48	n=7	Indigenous & Tribal Services #	N=48	n=7	Government #	N=48	n=7	First responders #	N=48	n=7	Religion & Faith #	N=48	n=7	Military #	N=48	n=7	Other #	N=48	n=7	Not reported #	N=48	n=7
At-Risk for College Students	1	2.1%	14.3%										1	2.1%	14.3%																					
At-Risk for College Students AND At-Risk for Faculty & Staff	3	6.3%	42.9%																																	
At-Risk for Middle School Educators				2	4.2%	28.6%																														
At-Risk for Middle School Educators AND At-Risk for High School Educators				1	2.1%	14.3%																														
Total	4	8.3%	57.1%	3	6.3%	42.9%	0			0			1	2.1%	14.3%	0			0			0			0			0			0			0		

Appendix H: Participation per training

Provider	Voluntary		Mandatory		Mixed		Not reported	
	#	*N* = 48	#	*N* = 48	#	*N* = 48	#	*N* = 48
LivingWorks	8	16.7%	0		2	4.2%	1	2.1%
QPR	21	43.8%	3	6.3%	0		4	8.3%
Kognito	2	4.2%	0		5	10.4%	1	2.1%
Connect	1	2.1%			1	2.1%		
Total	32	66.7%	3	6.3%	8	16.7%	6	12.5%

LivingWorks	Voluntary			Mandatory			Mixed			Not reported		
	#	*N* = 48	*n* = 11	#	*N* = 48	*n* = 11	#	*N* = 48	*n* = 11	#	*N* = 48	*n* = 11
Start										1	2.1%	9.1%
SafeTALK	2	4.2%	18.2%									
ASIST	6	12.5%	54.5%				2	4.2%	18.2%			
Total	8	16.7%	72.7%	0			2	4.2%	18.2%	1	2.1%	9.1%

QPR	Voluntary			Mandatory			Mixed			Not reported		
	#	*N* = 48	*n* = 28	#	*N* = 48	*n* = 28	#	*N* = 48	*n* = 28	#	*N* = 48	*n* = 28
Standard QPR Gatekeeper Training	12	25.0%	42.9%	2	4.2%	7.1%				3	6.3%	10.7%
Adapted QPR Gatekeeper Training	6	12.5%	21.4%	1	2.1%	3.6%						
Adapted QPR training not specified	1	2.1%	3.6%							1	2.1%	3.6%
QPR for First Responders	1	2.1%	3.6%									
QPRT	1	2.1%	3.6%									
Total	21	43.8%	75.0%	3	6.3%	10.7%	0			4	8.3%	14.3%

Kognito	Voluntary			Mandatory			Mixed			Not reported		
	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7	#	N = 48	n = 7
At-Risk for College Students	1	2.1%	14.3%									
At-Risk for College Students AND At-Risk for Faculty & Staff							3	6.3%	42.9%			
At-Risk for Middle School Educators	1	2.1%	14.3%				1	2.1%	14.3%			
At-Risk for Middle School Educators AND At-Risk for High School Educators							1	2.1%	14.3%	1	2.1%	14.3%
Total	2	4.2%	28.6%	0			5	10.4%	71.4%	1	2.1%	14.3%

Note. $N = 48$ refers to the total number of units in this content analysis. $n =$ refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Appendix I: Identified measures

Measure	Subscales	Details	Provider	Units	Number of unique Knowledge measures	Number of unique Self-efficacy measures
Beliefs and Attitudes (no name, adapted from QPR)	Preparedness To Help, Usefulness Of Mental Health Care, Responsibility To Help	Beliefs and Attitudes was measured using 3 dependent variables: (1) preparedness to help, (2) usefulness of mental health care, and (3) responsibility to help.	Connect	Bean & Baber, 2011 (Adults); Bean & Baber, 2011 (Youth)		
Knowledge (no name, adapted from QPR)	none	knowledge about youth suicide and its prevention	Connect	Bean & Baber, 2011 (Adults); Bean & Baber, 2011 (Youth)	1	
Stigma (no name)	none	5-item stigma measure that tapped attitudes and beliefs regarding stigma related to youth suicide prevention and seeking mental health care. (This may have been embedded in the other survey, but results were reported separately)	Connect	Bean & Baber, 2011 (Adults); Bean & Baber, 2011 (Youth)		
Gatekeeper Behavior Scale (GBS)	Preparedness, Likelihood, Self-efficacy	(sometimes called gatekeeper appraisal) assess participants' self-reported preparedness to help students in psychological distress, the likelihood they would help those in psychological distress, and their self-efficacy in helping those in psychological distress.	Kognito	Bradley & Kendall, 2019; Rein et al., 2018; Robinson-Link et al., 2020; Smith-Millman et al., 2022; Timmons-Mitchell et al., 2019		1

Gatekeeper efficacy (no name)	none	Gatekeeper efficacy was measured with four items from Wyman et al. (2008), for example: "I am aware of the warning signs of suicide." The efficacy items used in Kognito studies are very similar, though more specific about confidence to accomplish discrete gatekeeper tasks. Both Kognito research (Albright et al., 2013) and QPR studies (Wyman et al., 2008) used separate scales of preparedness and efficacy. We followed this convention, though we note the constructs are theoretically closely related	Kognito	Coleman et al., 2019		1
Gatekeeper Experiences (adapted)	none	Gatekeeper Experiences examined the number of times an individual experienced several gatekeeper behaviors such as identifying someone at risk or referring someone to mental health treatment. Adapted from the Gatekeeper Behaviors scale in QPR	Kognito	Yeates, 2018		
Gatekeeper Intervention Behaviors	Identify, Approach, Refer (Sometimes aslo Ask and Suicidal Refer)	- (Each subscale is a single question to determine gatekeeper intervention behaviors: the number of students that the gatekeepers had a) been Concerned about because of psychological distress (including suicidal ideation), b) Approached and discussed their concerns with, and c) Referred to appropriate services in the past two months. - Sometimes participants also indicated the number of times they asked someone about suicide and how many suicidal students they referred. This means there can be two additional subscales for Ask and Suicidal Refer.	Kognito	Robinson-Link et al., 2020; Smith-Millman et al., 2022; Timmons-Mitchell et al., 2019		
Gatekeeper Knowledge and Beliefs	Knowledge and Beliefs	Gatekeeper Knowledge and Beliefs combined the Gatekeeper Preparedness and Self-Evaluation Knowledge scales from QPR.	Kognito	Yeates, 2018	1	

Gatekeeper preparation (no name)	none	Gatekeeper preparation was measured with five items from previous Kognito research and two items from Wyman et al. (2008). A typical item is "I am prepared to recognize when a peer's behavior is a sign of psychological distress."	Kognito	Coleman et al., 2019		
Gatekeeper Reluctance (adapted)	none	Adapted from the Gatekeeper Reluctance scale in QPR	Kognito	Yeates, 2018		
Gatekeeper Self-Efficacy (adapted)	none	Adapted from the Gatekeeper Self-Effiacy scale in QPR	Kognito	Yeates, 2018		1
Prevention Behavior (no name)	Ask About Distress, Youth/Peers Referred	Ask about distress and suicide was measured with four items from Wyman et al. (2008) that assess the frequency over the previous 2 months that the participant has identified and asked a peer about distress or suicide.	Kognito	Coleman et al., 2019		

Beliefs (no name)	Self-efficacy, Cues to Action, Perceived Barriers to Action, Perceived Controllability	Self-efficacy: agreeing with statements like, "I feel comfortable discussing suicide issues with youths" and "I can make appropriate referrals within my agency for youths contemplating suicide" indicate high levels of self-efficacy. Cues to Action: Indicating self-assessed knowledge about the "signs and symptoms of suicide ideation or attempt" and "the relationship between suicide and social issues/ problems" demonstrates high awareness of cues to action. Perceived Barriers to Action: Endorsing statements like, "I am too busy to participate in suicide prevention activities" and "My colleagues and I should not be responsible for discussing suicide with youths" indicate barriers to action. Perceived Controllability: Disagreeing with statements such as, "If a youth experiencing thoughts of suicide does not acknowledge the situation, there is very little I can do to help" and "If a youth contemplating suicide does not seek assistance, there is nothing I can do to help" correspond to higher perceived controllability.	LivingWorks	Magness et al., 2023		1
Change in Knowledge and Behavior	Knowledge and Behavior	Change in knowledge (increase or decrease) and behavioral change ((expected behavioral change based on answer of participants agreeing or disagreeing with statement).	LivingWorks	Hickey, 2022	1	
Composit Behavior (no name)	Behavioral Intention, Ability, Comfort, Preparedness	participant responses to the following statements on a five-point scale: "If someone appears to be at risk of suicide, I will ask them directly if they are thinking of suicide"; "I can respond to suicidal behavior"; "Indicate your comfort level with discussing suicide with others"; "Indicate your preparation level with responding to a youth who is exhibiting depressed and/or suicidal behavior".	LivingWorks	Mueller-Williams et al., 2023 (SafeTALK); Mueller-Williams et al., 2023 (ASIST)		1

Gatekeeper Training Practice Issues	Identification, Response, Referral	- Identification: The process by which a gatekeeper recognizes that a youth might be at risk. - Response: Gatekeeper behaviors meant to assess and support the youth, including frequency of asking about suicidal thoughts, asking about suicide in response to warning signs, and helping behaviors. - Referral: Providing information, encouraging help-seeking, and actually taking a youth to a professional.	LivingWorks	Ewell Foster et al., 2017; Kahsay et al., 2020	1	
Gatekeeper Training Survey (adapted from QPR, Wyman 2008)	Identification, Response, Referral	Identification: Successful recognition of youths at-risk. Response: Supportive actions towards the youth Referral: Ability to connect the youth to professional resources and support	LivingWorks	Magness et al., 2023	1	
Knowledge (no name)	none	Data on knowledge came from a mean composite score in response to three suicide prevention knowledge questions on a 5-point scales (1 = strongly disagree, 5 = strongly agree): "It is appropriate to ask someone who may be at risk of suicide about suicide;" "I know how to get help for someone who is at risk of suicide;" and "I can identify warning signs and risk factors for suicide."	LivingWorks	Mueller-Williams et al., 2023 (SafeTALK); Mueller-Williams et al., 2023 (ASIST)	1	
Organizational Research Services (ORS)	Attitudes, Knowledge, Comfort-Competence-Confidence (sometimes 3, sometimes 5 subscales)	The ORS (2002) pre-, post-, and follow-up training surveys use 15-, 18-, and 21-item measures (post- and follow-up surveys add questions of training experience and SI use) designed to assess an individual's attitude toward suicide; knowledge about suicide; and level of comfort in responding, competence at responding, and confidence at attempting response to a person at risk of suicide.	LivingWorks	Shannonhouse et al., 2017 (college staff); Shannonhouse et al., 2017 (K-12); Shannonhouse, et al., 2018;	1	1

Post-intervention scenarios	none	The scenarios required individual participants to provide written responses to the questions using their own observations and judgements to determine the best situational outcomes. This study's post-intervention "scenarios" were developed using the SIRI-2, as well as the ASIST P.A.L. suicide intervention model.	LivingWorks	Davis, 2019	1	
Suicide Intervention Response Inventory– 2nd Edition (SIRI-2)	none	- This 48-item scale assesses SI skills by evaluating the appropriateness of a caregiver's response to a person at risk of suicide. - participants are given 24 statements that a person at risk of suicide may make, each having two possible caregiver responses that participants must rate from –3 to +3. The total score is the accumulation of divergence between the ratings of the participants and those of an expert suicidologist panel (lower SIRI-2 scores represent higher SI skills).	LivingWorks	Davis, 2019; Mize et al., 2022; Shannonhouse et al., 2017 (college staff); Shannonhouse et al., 2017 (K-12); Shannonhouse et al., 2018;	1	
The ASIST Intervention Tracking Tool (ITT)	none	The ASIST ITT enabled participants to track a) whether or not they used ASIST skills during an interaction with an older adult at risk, b) when the intervention took place, c) components of the model they used during the interaction, d) whether the interaction was with an older adult with active thoughts of suicide, e) setting in which they used the skills (e.g., HDM route, work, and church), and f) relationship to the older adult (e.g., HDM client, community member, friend, and family member). This descriptive measure was intended to illuminate whether volunteers trained in ASIST had opportunities to utilize the intervention in their day-to-day lives.	LivingWorks	Mize et al., 2022		

The Natural Helper Scale	none	assesses communication between the gatekeeper and youth. - Three statements, "Youth talk to me about their thoughts and feelings," "Youth come to me for advice and assistance when they are troubled," and "Youth turn to me when they are concerned about another youth," are assessed on a 5-point scale ranging from Never to Always.	LivingWorks	Ewell Foster et al., 2017		
Appraisals (no name)	Preparedness, Self-evaluation Knowledge, Self-efficacy, Reluctance, Access to Services,	Preparedness: 7-items assessed preparation to perform activities such as 'ask appropriate questions about suicide', Self-evaluation Knowledge: 9-items assessed perceived knowledge Self-efficacy: 7-items efficacy to perform intervnetion Reluctance: 9-tems (e.g., 'School teachers and staff should not be responsible for discussing suicide with students') Access to Services: 4-item scale assessed awareness of school policies and ability to use referral resources for suicidal students.	LivingWorks & QPR	Kahsay et al., 2020; Wyman et al., 2008	1	1
Gatekeeper Efficacy and Gatekeeper Reluctance	Efficacy to Perform Gatekeeper Role, Reluctance to Engage with Suicidal Clients Scale	Efficacy: 7-items designed to assess perceived efficacy to perform suicide prevention activities Reluctance: 8 items designed to address a participants' reluctance to engage in suicide prevention activities	LivingWorks & QPR	Ewell Foster et al., 2017; Jacobson et al., 2012; Osteen et al., 2014		1
Action (no name)	none	likelihood to take specific actions to prevent suicide (e.g., "Tell a suicidal person who to talk to for help.").	QPR	Wood et al., 2023		
Appropriate Referrals of Clients	none	2 items asking them whether they had referred a client they identified as suicidal or at risk for suicide.	QPR	Jacobson et al., 2012; Osteen et al., 2014		
Asking Clients About Suicide	none	6-item scale that measures participants' behaviors regarding asking clients about suicide and responding to client suicide behavior when signs and symptoms of depression were present	QPR	Jacobson et al., 2012; Osteen et al., 2014		

Asking Depressed Clients About Suicide	none	assess how often social participants asked their clients about suicide when depression was identified.	QPR	Jacobson et al., 2012; Osteen et al., 2014		
Attitudes (no name)	Suicide is a Major Problem, Problem Should Be Addressed, and Suicide is Preventable	single items (1=strongly disagree to 5=strongly agree): 1. Suicide among young people is a major issue in my community. 2. The problem of youth suicide should be addressed in my community. 3. Suicide is preventable in the majority of situations.	QPR	Tompkins et al., 2009		
Attitudes (no name)	none	4-items attitude questions were self-rated likelihood of updating knowledge	QPR	Painter et al., 2018		
Attitudes toward Suicide Prevention Scale (ASP)	none	Assesses stigma regarding suicide and suicide prevention	QPR	Jacobson et al., 2012; Osteen et al., 2014; Osteen et al., 2021		
Beliefs and Attitudes (no name, adapted from QPR)	beliefs and attitudes about suicide, personal competency, and self-efficacy	The items related to beliefs and attitudes about suicide, personal competency, and selfefficacy were analyzed individually and included: 1. "If someone I knew was showing signs of suicide, I would directly raise the question of suicide with them." 2. "If a person's words and/or behavior suggest the possibility of suicide, I would ask the person directly if he/she is thinking about suicide." 3. "If someone told me they were thinking of suicide, I would intervene." 4. "I feel confident in my ability to help a suicidal person." 5. "I don't think I can prevent someone from suicide." 6. "I don't feel competent to help a person at risk of suicide."	QPR	Adams et al., 2018		1
Communication with Students	Natural Gatekeeper, Ask Students About Distress	3-items assessed appraisals of staff interactions with students (e.g., 'Students talk to me about their thoughts and feelings')	QPR	Wyman et al., 2008		
Confidence and Reluctance (non name, adapted from QPR)	Confidence and Reluctance	8-item suicide knowledge/ reluctance scale was adapted from QPR evaluations by Wyman et al.	QPR	Witry at al., 2020		

Confidence scale (no name, adapted from QPR evaluations)	none	Confidence in one's ability to identify and perform intervnetion	QPR	Witry at al., 2020		1
Declarative Knowledge (no name)	none	focused on signs of suicidal ideation, risk factors, myths about suicide	QPR	Hempel Rhudy, 2019	1	
Efficacy to Perform Gatekeeper Role Scale also called Gatekeeper Training Evaluation	Perceived Self Knowledge and Perceived Self-Efficacy	Perceived Self Knowlege: Assesses participants' perceived self-knowledge in relation to assessing suicide risk and what steps to take to prevent suicide. Perceived Self-Efficacy: Assesses participants' perceived self-efficacy and how they imagined themselves actually taking actions to assess and manage suicide situations.	QPR	Cerel et al., 2012; Cross et al., 2007; Goldstein, 2017; Jacobson et al., 2012; Matthieu et al., 2008; Matthieu & Swensen, 2014; Osteen et al., 2021	1	1
Gatekeeper Behavior	Ask About Suicide, Referral Behavior	How many times in the last 6 months have you asked a student whether s/he was considering suicide? How frequently in past six months they performed six QPR behaviors consistent with safety protocols	QPR	Wyman et al., 2008		
Gatekeeper Training Satisfaction (no name)	none	Respondents rated the value of the training, overall satisfaction, comfort during training, and if they would recommend the training to others on a 5-point scale (not at all to definitely). Training length was assessed with one self-report item that allowed respondents to describe the training as too long, too short, or just right.	QPR	Cross et al., 2007		
Gatekeeper training survey (no name, modified)	none	Modified for a college setting. 11-tems measuring likelihood of engaging in certain suicide prevention behaviors, attitudinal. Lastly, respondents were asked if they had ever referred a depressed or suicidal person to on-campus mental health services	QPR	Mitchell et al., 2013		

General knowledge (no name, adapted from QPR)	none	Information about local resources for help. (6 items) The questionnaire was adapted from instruments previously used to evaluate gatekeeper programs and inquired about demographics and other domains.	QPR	Tompkins et al., 2009	1	
Inevitability (Attitudes) (adapted from both QPR's original AND from the Lifelines Questionnaire)	none	- Inevitability consists of eight items forming a scale addressing myths and attitudes about the inevitability of suicide. Six items were modified from the Lifelines Questionnaire (Kalafat & Elias, 1994; e.g., "Young people who are seriously planning to kill themselves don't want any help"), and two items were developed internally (e.g., "If a young person wants to kill him/herself, eventually he/she will do it").	QPR	Keller et al., 2009		
Intervention (no name)	none	making appropriate interventions for patients who might benefit from suicide prevention (1 question about before and 1 question about after suicide prevention training); responses included "not at all likely," "a little likely," "moderately likely," "very likely," and "extremely likely."	QPR	Painter et al., 2018		
Intervention behaviors (no name)	Ideation, Plan, Lethality	- 1. What proportion of times did you ask these people directly if they were having suicidal thoughts/ideas (Ideation)? - 2. What proportion of times did you ask these people directly if they had a plan to end their life (Plan)? - 3. What proportion of times did you ask these people directly if they had access to lethal means of ending their life (Lethality)?	QPR	Osteen et al., 2021		
Intervention knowledge & likelihood to help (no name, adapted from QPR)	none	The questionnaire was adapted from instruments previously used to evaluate gatekeeper programs and inquired about demographics and other domains. I would encourage them to talk about their problems and wish to die. (7 items)	QPR	Tompkins et al., 2009	1	

Inventory of Attitudes toward Seeking Mental Health Services (IASMHS)	Psychological openness, Help-seeking propensity, Indifference to stigma	24item three-factor inventory measuring: (a) psychological openness (b) help-seeking propensity (c) indifference to stigma	QPR	Cascamo Jr., 2013		
Knowledge (no name, adapted from QPR)	none	items addressed facts about suicide prevention, warning signs of suicide, how to ask someone about suicide, persuading someone to get help, how to get help for someone, information about local resources for help with suicide, and general knowledge of suicide and suicide prevention	QPR	Adams et al., 2018	1	
Knowledge (no name, adapted from QPR)	none	Participants' knowledge of suicide risk assessment and risk management was assessed using an evaluation adapted from a previous study (Schumacher et al., 2006). Questions were reviewed to select items that were most sensitive to change. Multiple choice options were evaluated and amended by a panel of experts to increase difficulty for items that captured important content based on national guidelines but had low pretest–posttest change that appeared to be mostly influenced by high pretest scores (Pisani, Cross, & Gould, 2011). Additional items were added based on competencies described by Pisani et al. The final knowledge measure contained 17 multiple-choice items. Several subdomains of knowledge were evaluated, including knowledge of suicide risk and protective factors, suicidal warning signs, safety planning and documentation procedures, and strategies for engaging suicidal clients (see Table 2). Scores were calculated by summing the number of correct responses on knowledge items; higher scores indicated greater levels of knowledge.	QPR	Gryglewicz et al., 2017	1	

Knowledge (no name)	none	facts about suicide prevention, warning signs of suicide, how to ask someone about suicide, persuading someone to get help, how to get help for someone, information about local resources for help with suicide, and general knowledge of suicide and suicide prevention	QPR	Samoulis et al., 2020	1	
Knowledge (no name)	none	The method of evaluation of knowledge gained was a 9-question pretest and posttest.	QPR	Johnson & Parson, 2012	1	
Knowledge and Attitudes about Suicide (KAS)	Normality, Mental Illness, Risky Behavior, Depression, Talk vs Complete, Substance Use, Suicide as Solution	Normality: Most people who kill themselves are normal, but they have had a lot of bad things happen to them. Mental Illness: Almost all people who kill themselves are mentally ill Risky Behavior: People who do risky things, like always driving very fast, may be trying to hurt or kill themselves and could use some help Depression: It would be unusual for a person to never get depressed. Talk vs Complete: People who talk about suicide do not complete suicide. Substance Use: Drugs and alcohol can cause depression to become so bad that it can lead people to try to hurt or kill themselves AND Drugs and alcohol are a good way to help someone stop feeling depressed. Suicide as Solution: For people who have a lot of problems in their lives, I think suicide is a possibly good/only solution (vs. never a solution).	QPR	Tsong et al., 2019	1	

Knowledge and Skills (no name, adapted from QPR)	none	-items that asked participants to rate their knowledge of suicide prevention (i.e., facts, warning signs, how to ask someone about suicide, how to persuade someone to get help, and information about local resources). The questionnaire also asked participants whether they believed that asking about suicide is appropriate, whether they were likely to ask someone if they are thinking of suicide, and a self-rating of their current understanding about suicide prevention.	QPR	Indelicato et al., 2011	1	
Knowledge of Institutional Resources	none	Assessed the participant's awareness of printed materials, referral resources, and policies related to suicide prevention within the social work agency.	QPR	Jacobson et al., 2012: Osteen et al., 2014	1	
Knowledge of Suicide Warning Signs and Intervention Behaviors Scale	none	comprised of eight questions focused on knowledge related specifically to the QPR training and six questions focused on suicide risk factors.	QPR	Jacobson et al., 2012	1	
Likelihood (no name)	none	Likelihood of intervening was assessed with three items from a 5-point response set ranging from strongly disagree to strongly agree. A sample item was: "If someone told me they were thinking of suicide I would intervene."	QPR	Cerel et al., 2012; Samoulis et al., 2020		
Likelihood to intervene (no nname, adapted from QPR)	none	5-items assessed self-reported likelihood to intervene the next time they encounter someone showing warning signs of suicide, likelihood to pursue additional training in suicide prevention in the next 5 years, whether the sessions had too much or too little information, whether the sessions had too much or too little practice, and their self-reported level of emotional difficulty with the material. Students were also asked to provide open-ended responses on what was most helpful about the sessions and recommendations for improvement.	QPR	Witry at al., 2020		

Observational Rating Scale	none	55 observations were completed and rated using the observational measure of gatekeeper skill from two time periods: 26 immediately following training and 29 6 weeks later.	QPR	Cross et al., 2007			
Occurrence of QPR Intervention (no name)	none	To determine if use of the QPR intervention had occurred, a monthly e-mail questionnaire was distributed for a 3-month time period following the training. The e-mail included questions about contact with potentially suicidal students and additional information about preventing suicide.	QPR	Johnson & Parson, 2012			
Perceived Knowledge (adapted from QPR's original)	none	Perceived knowledge differs from factual or declarative knowledge in that it measures one's self-appraisal. Perceived knowledge was measured using a seven-item truncated version of Quinnett's (1995) nine-item scale. Items cover areas such as knowledge of the warning signs of suicide and persuading someone to get help.	QPR	Keller et al., 2009		1	
Perceived Preparedness for Gatekeeper Role	none	8 items, designed to assess participants' self-assessment of preparedness to perform suicide prevention activities.	QPR	Jacobson et al., 2012; Osteen et al., 2014			
Perception (no name)	General Perception about Suicide, Myths and Facts, Bias	The general perception construct was composed of 10 true-or-false questions based on "Myths and Facts about Suicide" developed by CHIP for the QPR program. The perception questions were related to suicide prevention, child and adolescent suicidal behavior, and gender differences in suicidal behavior. Participants were also asked 3 questions about bias toward suicide prevention (whether suicide can be prevented, previous training in suicide prevention, personal contact with individual who died by suicide)	QPR	Painter et al., 2018		1	

Pre-test and Follow-up survey (no name, developed by the QPR Institute)	Pre-test and Follow up	Pre-test: Assesses the beliefs of the participant regarding suicide prevention prior to the training. Specifically, this questionnaire measured the pre-training belief in one's ability to identify and intervene if he encountered a person with suicidal thoughts. Questions also pertained to participants' current knowledge of suicide. Follow up: Assesses if participants were able to articulate key concepts of intervening with suicidal individuals and included: · I can recognize warning signs of suicide. Give some examples of warning signs. · I can intervene to help prevent suicide. Give some examples of how to intervene. · Have you used any of the information provided in the QPR training? If yes, please describe.	QPR	Bell, 2015	1	1
Prevention behavior (no name)	none	Measures tendency to engage in prevention behaviors (i.e., talking to others about suicide, reporting warning signs to a trusted authority figure, etc.) three months after the conclusion of the study.	QPR	Hempel Rhudy, 2019		
QPR Gatekeeper Survey (similar to ORS)	Knowledge, Preparedness, Confidence, Competence	The QPR Gatekeeper Survey is a 6-item self-report measure that assesses perceived knowledge and competence regarding suicide preventions. Participants were asked to rate their knowledge, preparedness, comfort, and confidence on a 7-point Likert scale before and after receiving QPR training, as well as during three-month follow-up. The Gatekeeper Survey was developed by the QPR Institute.	QPR	Hempel Rhudy, 2019	1	1
QPR knowledge quiz (adapted from QPR)	none	The questionnaire was adapted from instruments previously used to evaluate gatekeeper programs and inquired about demographics and other domains. The number one contributing cause of suicide is (15 items). both Multiple-choice and T/F	QPR	Tompkins et al., 2009	1	

QPR Suicide Prevention Survey	none	Measures participants' perceived level of knowledge of: (a) facts on suicide prevention (b) warning signs of suicide (c) how to ask about suicide (d) persuading someone to get help (e) how to get help for someone (f) information about local resources (g) asking someone about suicide is appropriate (h) the likelihood that they will ask someone if they are thinking of suicide (i) overall level of understanding about suicide and suicide prevention	QPR	Duong-Killer, 2015; Tsong et al., 2019	1	
Questioning (no name, adapted from QPR)	none	The questionnaire was adapted from instruments previously used to evaluate gatekeeper programs and inquired about demographics and other domains. Ask someone if they are suicidal.(5 items)	QPR	Tompkins et al., 2009		
Risk Factors List	none	researchers developed an open-ended question that asked students to list as many risk factors and warning signs of suicide as possible.	QPR	Jacobson et al., 2012; Osteen et al., 2014	1	
Role Play Acceptability Scale	none	used to evaluate additional module "Behavioral Rehearsal Practice Session." which was provided after QPR training	QPR	Matthieu et al., 2008; Matthieu & Swensen, 2014		
Satisfaction with the Role Play Skill Assessment	none	role play experience was assessed with 10 items; acceptability of role play, factors that may enhance the potential for transfer of learning	QPR	Cross et al., 2007		
Self-appraisal (no name)	Perceived Knowledge and Self-efficacy	Perceivecd Knowledge: Knowledge about suicide (e.g. warning sings) Self-efficacy: Ability to identify and intervene with an individual at risk for suicide	QPR	Godoy Garraza et al., 2022	1	1

Self-efficacy (adapted from QPR's original)	none	- Self-efficacy taps one's perceived ability to intervene on behalf of youth who may be at risk for suicide. The scale is based on the seven-item Gatekeeper Efficacy scale used in a study of secondary school staff (Wyman et al., 2008). The scale was reworded for a broader gatekeeper audience, reduced to four items, and combined to create a total score. Items include "People with my role or job description are responsible for discussing suicide with young people" and "I have the necessary skills to discuss suicide issues with young people."	QPR	Keller et al., 2009		1
Self-efficacy (no name, adapted from QPR)	none	The questionnaire was adapted from instruments previously used to evaluate gatekeeper programs and inquired about demographics and other domains. How competent would you feel helping a suicidal person? (3 items)	QPR	Tompkins et al., 2009		1
Self-efficacy (no name)	none	Self-efficacy for intervening was also assessed with three items and utilized the same response set. A sample item for self-efficacy for intervening was: "I feel confident in my ability to help a suicidal person." Two items on this subscale were reverse coded."	QPR	Samoulis et al., 2020		1
Self-efficacy (no name)	none	7-items self-efficacy questions about confidence in identifying and responding to symptoms of suicide.	QPR	Painter et al., 2018		1
Self-Evaluation of Suicide Prevention Knowledge	none	Perceived knowledge, defined as how one assesses his or her level of knowledge about what to do and role in detecting and helping a suicidal individual	QPR	Jacobson et al., 2012, Osteen et al., 2014; Osteen et al., 2021	1	

Student Suicide Prevention Survey	none	The final version of the survey examined knowledge of suicide risk factors by asking seven questions about student suicide risk in a series of scenarios. The survey also reviewed the participant's posttraining case management of suicide referrals by asking about the number of students questioned about suicidal ideation and the number referred to outside mental health services.	QPR	Reis & Cornell, 2008	1	
Suicide Prevention Knowledge (no name)	none	(e.g., "I know how to ask someone if they are suicidal.") The questionnaire also assessed willingness to support a person at-risk with firearm safety (e.g., "Ask someone at risk of suicide about their access to firearms.").	QPR	Wood et al., 2023	1	
Suicide Prevention Survey: Knowledge of QPR		Fourteen multiple-choice questions assessed content taught by the training, eight pertaining to appropriate question, persuade, and refer (QPR) behaviors with students and six to suicide risk factors. A respondent's score is the percentage of correct responses. Higher scores on a shorter list of these items have distinguished between respondents who have and have not received specialized training in suicide risk assessment (Quinnett, 1999).	QPR	Wyman et al., 2008	1	
training evaluation items (no name)	none	Provide open-ended responses on what was most helpful about the sessions and recommendations for improvement.	QPR	Witry at al., 2020		
Training Utilization and Preservation Survey (TUPS)	Refer, Notify, Escort	We considered three indicators of gatekeeper behavior as the primary outcome of interest: participants' identification of youth at risk of suicide and referral for support; whether participants notified the referral source; and whether the participant escorted the youth to the referral source.	QPR	Godoy Garraza et al., 2021		
Use of Gatekeeper Behaviors	none	7 items to assess use of suicide gatekeeper behaviors related to safety protocols	QPR	Jacobson et al., 2012; Osteen et al., 2014		

Willingness to Intervene against Suicide questionnaire (WIS) also referred to as the Theory of Planned Behavior (TPB) measures	Attitudes, Subjective Norms, Intention to Intervene (subscales: Question, Persuade, Refer), and Perceived Behavioral Control (PBC)	Attitudes: Attitudes about suicide intervention Subjective Norms: Regarding support from important others Intention to Intervene (subscales: Question, Persuade, Refer): used to gauge intention to [question/persuade/refer] given the presence of suicidal thoughts and feelings Perceived Behavioral Control (PBC) levels of confidence to intervene	QPR	Aldrich et al., 2018; Gryglewicz et al., 2017		1
N = 84 total unique measures. *n* = 34 unique Knowledge measures. *n* = 19 unique Self-efficacy measures.					34	19
N = 48 total units. *n* = 38 units measure Knowledge. *n* = 31 units measure Self-efficacy.						

Appendix J: Knowledge measure frequency per training

Provider	Knowledge - not specified		Factual knowledge		Perceived self knowledge		Procedural knowledge		Did not measure knowledge	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48	#	N = 48
LivingWorks	3	6.3%	4	8.3%	1	2.1%	8	16.7%	0	
QPR	1	2.1%	14	29.2%	13	27.1%	10	20.8%	5	10.4%
Kognito	0		0		1	2.1%	0		6	12.5%
Connect	2	4.2%	0		0		0		0	
Total	6	12.5%	18	37.5%	15	31.3%	18	37.5%	11	22.9%

LivingWorks	Knowledge - not specified			Factual knowledge			Perceived self knowledge			Procedural knowledge			Did not measure knowledge		
	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11
Start	1	2.1%	9.1%												
SafeTALK	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%	1	2.1%	9.1%			
ASIST	1	2.1%	9.1%	3	6.3%	27.3%				7	14.6%	63.6%			
Total	3	6.3%	27.3%	4	8.3%	36.4%	1	2.1%	9.1%	8	16.7%	72.7%	0		

QPR	Knowledge - not specified			Factual knowledge			Perceived self knowledge			Procedural knowledge			Did not measure knowledge		
	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28
Standard QPR Gatekeeper Training				11	22.9%	39.3%	7	14.6%	25.0%	9	18.8%	32.1%	3	6.3%	10.7%
Adapted QPR Gatekeeper Training	1	2.1%	3.6%	3	6.3%	10.7%	4	8.3%	14.3%				1	2.1%	3.6%
Adapted QPR training not specified							1	2.1%	3.6%	1	2.1%	3.6%			
QPR for First Responders							1	2.1%	3.6%						
QPRT													1	2.1%	3.6%
Total	1	2.1%	3.6%	14	29.2%	50.0%	13	27.1%	46.4%	10	20.8%	35.7%	5	10.4%	17.9%

Kognito	Knowledge - not specified			Factual knowledge			Perceived self knowledge			Procedural knowledge			Did not measure knowledge		
	#	*N =* 48	*n* = 7	#	*N =* 48	*n* = 7	#	*N =* 48	*n* = 7	#	*N =* 48	*n* = 7	#	*N =* 48	*n* = 7
At-Risk for College Students													1	2.1%	14.3%
At-Risk for College Students AND At-Risk for Faculty & Staff							1	2.1%	14.3%				2	4.2%	28.6%
At-Risk for Middle School Educators													2	4.2%	28.6%
At-Risk for Middle School Educators AND At-Risk for High School Educators													1	2.1%	14.3%
Total	0			0			1	2.1%	14.3%	0			6	12.5%	85.7%

Note. *N* = 48 refers to the total number of units in this content analysis. *n* = refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Appendix K: Self-efficacy measures per training

Provider	Self-effectiveness - not specified		Perceived Self-efficacy		Task-specific efficacy		Did not measure self-efficacy	
	#	N = 48	#	N = 48	#	N = 48	#	N = 48
LivingWorks	2	4.2%	1	2.1%	5	10.4%	3	6.3%
QPR	0		10	20.8%	12	25.0%	8	16.7%
Kognito	2	4.2%	5	10.4%	0		0	
Connect	0		0		0		2	4.2%
Total	4	8.3%	16	33.3%	17	35.4%	13	27.1%

LivingWorks	Self-effectiveness - not specified			Perceived Self-efficacy			Task-specific efficacy			Did not measure self-efficacy		
	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11	#	N = 48	n = 11
Start										1	2.1%	9.1%
SafeTALK	1	2.1%	9.1%				1	2.1%	9.1%			
ASIST	1	2.1%	9.1%	1	2.1%	9.1%	4	8.3%	36.4%	2	4.2%	18.2%
Total	2	4.2%	18.2%	1	2.1%	9.1%	5	10.4%	45.5%	3	6.3%	27.3%

QPR	Self-effectiveness - not specified			Perceived Self-efficacy			Task-specific efficacy			Did not measure self-efficacy		
	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28	#	N = 48	n = 28
Standard QPR Gatekeeper Training				5	10.4%	17.9%	7	14.6%	25.0%	6	12.5%	21.4%
Adapted QPR Gatekeeper Training				3	6.3%	10.7%	3	6.3%	10.7%	1	2.1%	3.6%
Adapted QPR training not specified				1	2.1%	3.6%	1	2.1%	3.6%	1	2.1%	3.6%
QPR for First Responders				1	2.1%	3.6%						
QPRT							1	2.1%	3.6%			
Total	0			10	20.8%	35.7%	12	25.0%	42.9%	8	16.7%	28.6%

Kognito	Self-effectiveness - not specified			Perceived Self-efficacy			Task-specific efficacy			Did not measure self-efficacy		
	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$	#	$N = 48$	$n = 7$
At-Risk for College Students	1	2.1%	14.3%									
At-Risk for College Students AND At-Risk for Faculty & Staff	1	2.1%	14.3%	2	4.2%	28.6%						
At-Risk for Middle School Educators				1	2.1%	14.3%						
At-Risk for Middle School Educators AND At-Risk for High School Educators				2	4.2%	28.6%						
Total	2	4.2%	28.6%	5	10.4%	71.4%	0			0		

Note. $N = 48$ refers to the total number of units in this content analysis. $n =$ refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

Appendix L: Study design by training

Provider	RCT		Quasi-experimental		Other		Control group?		Not reported	
	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$	#	$N = 48$
LivingWorks	0		9	18.8%	2	4.2%	3	6.3%	0	
QPR	4	8.3%	23	47.9%	1	2.1%	6	12.5%	0	
Kognito	1	2.1%	6	12.5%	1	2.1%	1	2.1%	0	
Connect			2	4.2%						
Total	5	10.4%	40	83.3%	4	8.3%	10	20.8%	0	

LivingWorks	RCT			Quasi-experimental			Other			Control group?			Not reported		
	#	$N = 48$	$n = 11$	#	$N = 48$	$n = 11$	#	$N = 48$	$n = 11$	#	$N = 48$	$n = 11$	#	$N = 48$	$n = 11$
Start				1	2.1%	9.1%									
SafeTALK				2	4.2%	18.2%									
ASIST				6	12.5%	54.5%	2	4.2%	18.2%	3	6.3%	27.3%			
Total	0			9	18.8%	81.8%	2	4.2%	18.2%	3	6.3%	27.3%	0		

QPR	RCT			Quasi-experimental			Other			Control group?			Not reported		
	#	$N = 48$	$n = 28$	#	$N = 48$	$n = 28$	#	$N = 48$	$n = 28$	#	$N = 48$	$n = 28$	#	$N = 48$	$n = 28$
Standard QPR Gatekeeper Training	3	6.3%	10.7%	13	27.1%	46.4%	1	2.1%	3.6%	5	10.4%	17.9%			
Adapted QPR Gatekeeper Training	1	2.1%	3.6%	6	12.5%	21.4%				1	2.1%	3.6%			
Adapted QPR training not specified				2	4.2%	7.1%									
QPR for First Responders				1	2.1%	3.6%									
QPRT				1	2.1%	3.6%									
Total	4	8.3%	14.3%	23	47.9%	82.1%	1	2.1%	3.6%	6	12.5%	21.4%	0		

Kognito	RCT			Quasi-experimental			Other			Control group?			Not reported		
	#	*N* = 48	*n* = 7	#	*N* = 48	*n* = 7	#	*N* = 48	*n* = 7	#	*N* = 48	*n* = 7	#	*N* = 48	*n* = 7
At-Risk for College Students	1	2.1%	14.3%							1	2.1%	14.3%			
At-Risk for College Students AND At-Risk for Faculty & Staff				3	6.3%	42.9%									
At-Risk for Middle School Educators				1	2.1%	14.3%	1	2.1%	14.3%						
At-Risk for Middle School Educators AND At-Risk for High School Educators				2	4.2%	28.6%									
Total	1	2.1%	12.5%	6	12.5%	85.7%	1	2.1%	14.3%	1	2.1%	14.3%	0		

Note. N = 48 refers to the total number of units in this content analysis. *n* = refers to the number of units in this content analysis that are focused on each of the four gatekeeper training providers.

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VITA

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EDUCATION

PhD, Counselor Education *(CACREP-Accredited)*   Expected August 2024
The Pennsylvania State University

M.A. - Clinical Mental Health Counseling *(CACREP-Accredited)*   2021
Denver Seminary - Littleton, Colorado
Award; Vernon C. Grounds Outstanding Student Award

B.S. - Organizational Management & Leadership *(Summa Cum Laude)*   2017
Colorado Christian University, Lakewood, Colorado
First generation college graduate

A.A. - Business   2010
Front Range Community College, Boulder, Colorado

PROFESSIONAL CERTIFICATIONS

Nationally Certified Counselor (NCC# 1585910)

RESEACH EXPERIENCE

Department of Educational Psychology, Counseling, and Special Ed   2021-Present
University Park, PA
Research Team Member
- Member of multi-university research team on adolescent mental health
- Worked on IRB process and created Qualtrics survey
- Develop model for manuscript investigating adolescent NSSI, protective factors, and risk factors

REFEREED PUBLICATIONS

Ahmadi, A., & **Gerthe, J**. (2023). A review of attachment theory. *The Journal of the Pennsylvania Counseling Association. 24*(1), 15-28.

Holm, J. M., Lockhart, J., Prosek, E. A., Rawls, M. S., & **Gerthe, J.** (2023). Program evaluation of a community-engaged partnership between a counselor preparation program and adult probation services. *Counseling Outcome Research and Evaluation.* https://doi.org/10.1080/21501378.2023.2243293

MINI BOOK CHAPTER

Prosek, E. A., & **Gerthe, J.** (2023). Assessment and diagnostic processes. In C. A. Barrio Minton & M. Gibbons (Eds.). *Case studies in counselor education.* Cognella.