The Impact of an Interpersonal-Psychological Theory of Suicide (IPT) Workshop on Rural K–12 School Counselors’ Assessment Knowledge and Self-Efficacy

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Abstract

Suicide rates across the United States continue to increase steadily. Rural communities tend to face barriers to suicide assessment and treatment that urban communities do not. School counselors working in rural education often serve as the primary screening tool for youths who might be at risk for suicide. Numerous models and theories have served as guidelines for explaining and assessing suicidal ideation. In 2009, Thomas Joiner introduced the interpersonal-psychological theory of suicide (IPT), an approach drawing on three main factors: perceived burdensomeness, thwarted belongingness, and acquired capability. Given the well-supported place of IPT in the literature, the present study utilized a nonconcurrent, multiple-baseline, multiple-probe design to examine the impact of a training model designed on this approach. Participants were K–12 school counselors employed in rural school districts across the United States. The results from this study demonstrated a significant increase in suicide-assessment knowledge, even when training was conducted remotely, but the results did not reveal a measurable change in self-efficacy. This is significant because it suggests increasing clinician knowledge around suicide assessment can be done through a cost-effective, remote platform, making it accessible to most people working in the mental health field. Future research should focus on the self-efficacy of school counselors, especially

regarding factors that could influence the confidence of these individuals in making risk assessments.

Keywords: suicide assessment, interpersonal-psychological theory of suicide, self-efficacy, rural schools, school counselors

Introduction

According to the National Institute of Mental Health (2010), suicide remains one of the top three causes of death every year for young people between the ages of 15 and 24 years. Meanwhile, on an annual basis across the United States, approximately 157,000 individuals between ages 10 and 24 years receive medical care in emergency rooms for self-inflicted injuries (Centers for Disease Control and Prevention, 2016). Children between 6 and 17 years of age spend 32.5 hours a week in school, over seven hours more than young people did 20 years ago (Juster, Ono, & Stafford, 2004), and those working in K–12 education interact with youths on a regular basis. Moreover, research indicates that 77% of school psychologists have had a student referred to them for suicide risk in the last two years, while 89% of school counselors report having students with suicidal thoughts (King, Price, Telljohann, & Wahl, 1999b). This, even as half of participating school psychologists deem themselves only “somewhat prepared” (Debski, Spadafore, Jacob,

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Poole, & Hixson, 2007, p. 163) to handle suicide referrals.

Accurately assessing a client's suicide risk is an indispensable skill for educators and counselors in K–12 systems. This ability is even more important in a rural school system, which tends to enjoy comparatively limited outside resources for managing suicide and mental health concerns (Gruman, Marston, & Koon, 2013). Research has shown that individuals assessing risk in school settings often lack the requisite education and self-efficacy (Liebling-Boccio & Jennings, 2013). A study published in the journal *Psychology in the Schools* asked school psychologists to identify suicide risk factors, and active school psychologists were, on average, able to identify only 6.56 out of 14 risk factors (Debski et al., 2007). The Interpersonal-Psychological Theory of Suicide (IPT) offers a more parsimonious approach than the traditional risk factors model (Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Despite this parsimony, research has yet to examine the potential of IPT training to increase knowledge and self-efficacy among K–12 educators, principals, and school counselors, and to thus improve their collective capacity in assessing suicide risk.

This study considered the degree to which IPT training increased rural K–12 educators' suicide-assessment self-efficacy and knowledge, and this introduction covers four relevant areas of the literature. The first looks at possible barriers to effective suicide assessment in rural areas. The second examines current trends in rural suicide and considers how they compare to urban trends. The third reviews the lack of suicide-assessment knowledge and self-efficacy among K–12 educators and counselors. And the fourth explores suicide training as a possible solution, with specific attention to the 3-factor model of IPT, as well as the research supporting it.

With respect to the first area considered in this discussion of the literature, rural communities face barriers to accurate suicide assessment that do

not exist in more traditional urban communities. As of 2011, 57% of operating school districts were in rural areas (U.S. Department of Education, 2013). Rural areas often encounter increased barriers when dealing with high-risk mental health populations, such as individuals who are actively suicidal. One study highlighted a rural high school in the state of Washington and found a lack of public transportation, as well as limited access to mental health services, including the number of school counselors provided to individual schools (Gruman et al., 2013). Most students assessed in the study were poor enough to receive free school lunches, and most registered at or below average state passing scores for standardized tests. The same study found that school counselors were spending most of their time working on registration, educational planning, and credit monitoring—not typical school counseling tasks (Gruman et al., 2013).

Some rural schools must function without any school counselors. A report on rural communities found that 87% of the mental health shortage areas (MHPSAs) in the United States were in rural areas (Gamm, Hutchison, Dabney, & Dorsey, 2003). According to the Health Resources & Services Administration (2019), MHPSAs are areas that do not have enough mental health providers to support the community's population; or they have mental health professionals who are overutilized, excessively distant, or inaccessible to residents. The lack of mental health resources outside the school system is concerning in general; but, even more pertinent to the present study, this shortage heightens the need for accuracy in school risk assessments.

A final study examined educators' perceptions of teaching in a rural area. Participants noted difficulties such as issues with salaries and benefits, resistance to change, insufficient mentoring, and preparation for multiple classes (with varying ages and intellectual abilities), as well as lack of access to university resources (Goodpaster, Adedokun, & Weaver, 2012). Rural

educators are more stretched than their counterparts in urban areas, and they can count on fewer external resources. Overextended educators and school counselors in rural settings may be more apt to miss suicide risk factors and thus need training as much if not more than those working in urban environments.

The second area of focus in this review of the literature involves current trends in rural suicide and specifically how they contrast with trends in urban areas. The U.S. Department of Veterans Affairs (VA) looked at rural–urban differences among its patients, nationally, between both 2004 and 2005 and 2007 and 2008, respectively, and discovered that overall suicide rates were higher among rural patients (McCarthy et al., 2012)—a finding shared by an Australian study that noted 62% of suicides were completed by individuals living in rural areas (Sankaranarayanan, Carter, & Lewin, 2010). Even more, the VA study found that rural patients were more likely to have been diagnosed with depression and/or posttraumatic stress disorder, both of which strongly correlate with suicide risk (Bryan & Cukrowicz, 2011; Hyman, Ireland, Frost, & Cottrell, 2012). In stark terms, the VA analysis concluded that simply residing in a rural ZIP code was associated with an increased risk for suicide mortality.

Rural youths show the same tendencies as their rural adult counterparts. A study in the *Journal of School Health* found that 23.4% of rural adolescents had thought about suicide, 15.9% had planned to complete suicide, and 10.0% had attempted suicide. These numbers are higher than the averages, within the same categories of response, across the United States, where 20.1% of adolescents had thought about suicide, 13.3% had planned to complete it, and 8.9% had attempted it (Dunn, Goodrow, Givens, & Austin, 2008). Research from Australia noted the same disparity, with Dudley et al. (1998) finding that significantly more youths in rural areas committed suicide as compared to those in urban areas.

The preferred method of suicide also differs between environments, with firearms being the most common means employed in rural settings—where they are used 2.09 times as often as they are in urban settings (Branas, Nance, Elliot, Richmond, & Schwab, 2004; McCarthy et al., 2012; Searles, Valley, Hedegaard, & Betz, 2014). Research in the *Journal of Public Health*, conducted over an 11-year period, found that rates of suicide by firearm increased by 1.3% each year in most rural areas. The *Journal of Public Health* study relied on data from the National Center for Health Statistics, looking at mortality associated with those ages 19 and under, over a seven-year period, and found that, while the numbers of deaths by firearm did not vary much between urban and rural communities, the presumptive intentions behind the deaths differed significantly. Suicide was the primary cause of firearm death among rural youths, whereas homicide was a leading cause among urban youths (Nance, Carr, Kallan, Branas, & Wiebe, 2010). Again, international research supports this trend. Coroners' reports from Australia, for example, have shown firearm suicides to be significantly more common among rural adolescents, who register at 57.8%, as opposed to their urban peers, who come in at 24.7% (Dudley et al., 1998).

Considering the third area of focus in this review of the literature, suicide education and training appear to be lacking among those in the best position to treat suicidal clients. One study noted only one fifth of master's-level social workers surveyed reported any formal training in suicidality (Feldman & Freedenthal, 2006). This trend continues in school systems. A study published in the *Journal of School Psychology* found that only 55.3% of directors of school psychology programs said suicide assessment needs should get more coverage in their programs (Liebling-Boccio & Jennings, 2013). The same study found that the main form of evaluating student preparedness for suicide assessment came through practicum and internship supervisor ratings (65.9% of programs),

rather than through class examinations (54.1% of programs) or in a review of the content of written assignments and papers (27.1% of programs). And yet, evaluating preparedness through a practicum, as is most common, seems fairly subjective, because the assessment depends on the evaluator's estimation of what counts as being "prepared," as well as the hope that working with a suicidal client might be covered during every practicum and internship, thereby facilitating the proper amount of attention.

In a similar vein, the *American Journal of Health Behavior* published a study that looked at school counselors' confidence in assessing suicidal students. The results from this assessment of 500 school counselors showed that the majority believed it was their job to identify at-risk students. Despite this belief only one third of these counselors felt they could identify suicidality in students (King et al., 1999b). This is alarming research, showing that school counselors feel they are responsible for but unprepared to assume the task of assessing suicide risk in students.

One large study of school counselors' suicide intervention self-efficacy was completed in Ireland. Boylan (2001) used the same measure as King et al. (1999b) to survey all Irish school counselors. Boylan applied logistic regression to examine suicide intervention self-efficacy in relation to gender, professional experience, ideation exposure, and training background. She reported that respondents exposed to suicide in their work were over 3 times more likely to have high suicide intervention self-efficacy. The relationship encountered between exposure and self-efficacy with school counselors was consistent with research from other professions.

The fourth and final topic in this review pertains to suicide-assessment training as a solution and the three main factors that make up IPT. Short-term interactive training administered from a distance provides a way of effectively disseminating information to rural populations. Ample research

exists documenting that training around suicide improves clinician knowledge, skills, and/or assessment self-efficacy (Robinson et al., 2013). Drawing on the above-described research and trends within the literature, the present study builds on IPT (Joiner, Van Orden, Witte, & Rudd, 2009), a parsimonious approach and a research-based consolidation importing risk and protective factors from preexisting models into a theory that identified three key factors in suicide assessment extending across a lifespan. Specifically, Joiner et al. (2009) suggested that an individual, when at high risk for completing suicide, will have relatively greater levels of perceived burdensomeness, thwarted belongingness, and acquired capability. As these researchers described it,

The three factors previously noted—acquired capability, perceived burdensomeness, and failed [thwarted] belongingness—are proposed as answers to the questions of who can die by suicide and who would want to. Who can? Those, who through habituation, have acquired the capability to enact lethal self-injury. Who wants to? Those who perceive that they are a burden on loved ones and that they do not belong to a valued group or relationship. Those who both can, and want to, are at highest risk of a serious suicide attempt or lethal self-injury. (p. 6)

Perceived burdensomeness can be compared to a severe form of low self-esteem. Individuals struggling with this feeling often believe they have some moral, mental, or physical defect; and, because of their negative self-perception, they feel like a burden to those closest to them. Owing to this cognitive distortion, such individuals may view their deaths less as harmful or detrimental events and more as beneficial outcomes—something better—for their loved ones (Joiner et al., 2009). Perceived burdensomeness occurs across different populations. Research has found that individuals across a wide swath of demographic variables can

feel like a burden to important others (e.g., Luntamo et al., 2014).

The second component of IPT is *thwarted belongingness*. Persons with a sense of failed belongingness feel alienated from valued others (Joiner et al., 2009). For example, rural depressed adolescent depression who scored higher on a scale of family closeness had decreased depressive symptoms (Peden, Reed, & Rayens, 2005). Similar results with rural youths in another study where there was a positive relationship between the adolescents' engagement in extracurricular activities and lower suicidality (Armstrong & Manion, 2006). Rural youths ranked "close friends" as most their most important protective factor (Evans, Smith, Hill, Albers & Neufeld, 1996).

Lastly, Joiner et al. (2009) realized that taking one's life is not an easy task; to successfully complete suicide, an individual has likely endured a significant amount of pain and provocation, and this endurance is often bolstered by prior self-harm behaviors, such as previous suicide attempts. An individual must overcome the fear and pain associated with carrying out the acts necessary to commit a lethal act of self-injury (Joiner et al., 2009). Witnessing or engaging in violence (e.g., military combat, police work, bullying, etc.) and repeated exposure to pain (e.g., illness or multiple injuries) increases one's acquired capability (Bryan & Cukrowicz, 2011; Chopko et al., 2014; Hyman et al., 2012; Ilgen et al., 2013; Kanzler et al., 2012; Luntamo et al., 2014; McCarthy et al., 2012; McWilliams et al., 2013; Okifuji & Benham, 2011; Van Orden et al., 2008; Van Tilburg et al., 2011).

When looking at rural youths, specifically, those with a friend who has either attempted suicide or experienced a shooting, stabbing, or assault have shown more depressive symptoms than have youths without such relationships (Peden et al., 2005). Research has also indicated that rural youths experience more bullying at school than do their urban peers, with bullying also carried out in a more aggressive manner (Murphy, 2014). What's

more, greater witnessing of and facility with lethal weapons is consistent with findings that adults and youths in rural areas have used firearms as their means of suicide more often than any other method (Branas et al., 2004; Dudley et al., 1998; McCarthy et al., 2012; Nance et al., 2010; Searles et al., 2014).

Given the aforementioned gaps and needs, two specific questions guiding the present research were (a) What is the impact of IPT-based suicide-assessment training on rural based school counselor's knowledge of IPT-based suicide assessment?, and (b) What is the impact of IPT-based suicide-assessment training rural based school counselor's suicide intervention self-efficacy?

Method

Design

This study utilized a nonconcurrent, multiple-probe, multiple-baseline design as well as a one-group pretest-posttest (Barlow, Hersen, & Jackson, 1973; Barlow, Nock, & Hersen, 2009; Gast, Lloyd, & Ledford, 2014; Watson & Workman, 1981). These designs involve repeated measurements of an outcome over time, using a single subject or groups, followed by identification of effects through comparisons of individual or group outcomes in the presence or absence of treatment, across time (Pustejovsky, Hedges, & Shadish, 2014). Threats related to history, testing, maturation, and statistical regression were controlled by using the multiple-baseline, multiple probe approach. (Barlow et al., 2009; Biglan et al., 2000; Christ, 2007). The present study employed an online training on IPT for the independent variable; the dependent variables were participant knowledge of suicide assessment and participants' self-efficacy in accurately assessing the level of risk. Baseline phase was Phase A, and intervention phase was Phase B.

Participants

Adults ages 36 to 41 years (of which there were two), ages 42 to 47 years (of which there were

six), and ages 48 to 53 years (of which there were three) were recruited with flyers sent out via email to administrators at K–12 schools in rural school districts across the United States. All 11 participants self-identified as Caucasian and female. To fully engage in the online training platform, participants required high-speed Internet access and a camera on their computer. Inclusion criteria also included the ability to speak English and employment as a K–12 school counselor in a rural school district. Participants had varying lengths of tenure in their current role; five counselors had under five years of experience, three had 5–10 years of experience, and another three had 11–15 years of experience.

Measures

IPT knowledge scale (IPT-KS). The IPT-KS was designed for the present study, consisting of six true–false questions covering the material presented in the slideshow training. A pilot of the questionnaire was conducted, and the mean score of IPT-naïve preservice mental health clinicians was 2 ($SD = 1.3$).

Intervening on suicide self-efficacy scale (ISSE). The ISSE was designed to assess teacher self-efficacy and experience regarding intervening with adolescent suicidality (King et al., 1999b). This metric was deployed to assess efficacy expectations, and each of its six items were measured on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), making for totals between 7 and 42. The ISSE validity and reliability with counselors are well established (King, Price, Telljohann, & Wahl, 1999b).

Apparatus

Zoom, a video-conferencing web program, was utilized to conduct the online trainings. The Zoom website reports that over 200,000 organizations use Zoom, including UCLA, Ticketmaster, Stanford Continuing Studies, Uber, and GoDaddy (Zoom, 2019). Zoom allowed

participants in this study to log in through the Internet and join other participants in remote locations, thus creating a “virtual” classroom environment. There was no need to download software; they could see the PowerPoint presentation and engage verbally and through text via a chat box with the trainer and other participants. Zoom cost the trainer \$30.00 for a two month subscription. An Internet connection speed above 12 megabits per second was required, and the rate was verified using Speedtest.net, an Internet speed-testing program (Ookla, 2015).

A web-based survey system called Qualtrics was used to provide posttest and pretest assessments. The Qualtrics website describes the company as “the leading global provider of data collection and analysis products for academic research, giving professors and students alike an all-in-one platform to capture real-time insights and draw solid conclusions” (Qualtrics, 2015). Organizations and entities using Qualtrics include Disney, Harvard, Microsoft, and NBC (Qualtrics, 2015).

Procedures

Participants were aware of the training topic prior to inclusion and gave informed consent according to university guidelines. Participants needed access to a computer and a high-speed Internet connection in order to attend the training. Participants were recruited through an e-mail invitation. A list of potential participants was created through the researchers’ contacts with doctoral professors, their students, and colleagues. Three groups were established, each containing four participants randomly assigned baseline lengths of three, five, or seven sessions through a random number generator at random.org. Random assignments were as follows: Group A—five-session baseline, Group B—three-session baseline, and Group C—seven-session baseline. Due to the multiple-probe aspect of the design, the knowledge assessments for Group A were given during sessions one and six. For Group B, the knowledge

assessments took place during sessions one and eight. For Group C, knowledge assessments happened at times one and ten. All groups completed the knowledge scale once during baseline and once after intervention.

For the self-efficacy assessment, Group A completed baseline assessment at times one, three, four, and five, and completed intervention assessments at times six, seven, and eight. Group B completed self-efficacy baseline assessments at times one, two, and three, and completed intervention assessments at times four, five, and six. Lastly, Group C completed baselines at times one, five, six, and seven, and intervention assessments at times eight, nine, and ten. In total, Group A completed seven self-efficacy assessments, Group B completed six, and Group C completed seven. Each group conducted a nonconcurrent study period. Groups met on Tuesdays and Thursdays, to complete either a baseline assessment measure or attend an intervention training followed by an assessment measure. Three training sessions took place via an online web platform (Zoom, 2019), and assessment measures were completed online as well (Qualtrics, 2015) through direct links provided to participants via e-mail. The study concluded after five weeks.

Treatment

The study followed IPT protocol, as described in the preceding literature review. The trainer completed doctoral-level testing on the IPT protocol as well as supervised clinical hours. Trainings took place through an online platform. The first training lasted approximately one hour and consisted of a PowerPoint presentation on IPT. The PowerPoint was created and presented by the study's first author. The second training lasted approximately 30 minutes and consisted of a brief case presentation, followed by discussion of how to utilize IPT to assess clients for suicide risk. At the conclusion of this training session, participants were asked to try out IPT skills with family or friends in role-play situations. Lastly, the

third training, which was approximately 30 minutes long, encouraged participants to discuss their experience of acquiring these newly learned skills.

Trainer. The training was conducted by the first author of this study. The first author has a Master's degree in counseling psychology from a CACREP university, is a licensed professional counselor with the Oregon Board of Licensed Professional Counselors, and is a certified alcohol and drug counselor level III in Oregon. The authors professional experience includes, two years conducting several hundred suicide assessment while working as a mental health consultant in a large metropolitan maximum-security jail. Currently, the trainer works alongside sheriff's deputies as a mobile crisis clinician responding to calls received through 911 dispatch. The author received doctoral-level supervision while using IPT in a variety of clinical settings.

Treatment Fidelity. Fidelity checklists were utilized at the end of every training session—checklists are available from the first author. Fidelity raters were two doctoral students from a counselor education program. Both raters were IPT trained and appropriately supervised while utilizing assessment skills.

Data Analysis

The first research question used a Wilcoxon signed rank test to evaluate the difference between test scores before and after intervention. The reported statistics include the standardized test statistic, Z , and the corresponding probability value, p . The observed effect size, Cohen's d , will also be reported. Visual and statistical analyses were both performed for the second research question. Specifically, Lane and Gast's (2014) protocol and Nonoverlap of All Pairs (NAP) were used to evaluate changes in self-efficacy over time. Visual analysis of graphic data, in contrast to statistical analysis of data, is the most frequently used data-analysis strategy for single-subject research designs (Gast, 2010). The

extent to which data in the baseline phases as opposed to the intervention phases do not overlap is an accepted indicator of the amount of performance change (Parker & Vannest, 2009). For the NAP test, the reported statistics include the NAP scores for each group and the corresponding confidence intervals. Both research questions had an alpha level set at 0.05. Statistical hypothesis testing was conducted using the R programming language and plots were generated using Microsoft Excel.

Results

Knowledge (RQ #1)

For a lower-tailed Wilcoxon signed rank test, $\hat{z} = -2.9040$. The corresponding p value (using a normal approximation of the W distribution) equaled $0.0018 < 0.05 = \alpha$. This test suggested significant evidence against the null hypothesis in favor of the alternative; intervention was likely associated with increased test scores. The effect size for the rural sample was $d = |\hat{z}|/\sqrt{n} = 0.8756$, which was “large” according to Cohen’s criterion (Cohen, 1998). See Figure 1 for a graphical representation of these results.

Self-Efficacy (RQ #2)

Visual analysis of the self-efficacy data revealed no substantial change from before to after intervention. For all groups, within-phase scores barely fluctuated and the mean difference before and after intervention was very small. For instance, the group with the largest change in average self-efficacy score after intervention—Group C—only diminished in performance by 0.18 points (on a 1–7 scale).

In terms of statistical analysis, the overlap-based effect size for Groups A, B, and C was NAP = 62.5%, NAP = 50%, and NAP = 12.5%, respectively. Interpretations of these statistics varied based on their corresponding 95% confidence

intervals: (38%, 87%), (0%, 100%), and (0%, 38%). Group A showed a very small treatment effect in the positive direction; however, the true direction of this effect (if one exists at all) could not be reliably inferred from the data, because Group A had many pairwise ties before and after intervention, and the confidence interval contained 50%. For Group B, the NAP value suggested no treatment effect. Unfortunately, the corresponding confidence interval was prohibitively wide due to the small sample size, thereby offering no additional insights. Lastly, Group C showed a moderate negative effect size. When considering all groups, there was likely no outstanding treatment effect; that is, there was no evidence that intervention influenced self-efficacy in the rural population. See Figure 2 for a graphical representation of these results.

Discussion

This study utilized a multiple-baseline, multiple-probe design as well as a one-group pretest–posttest to look at the impact of suicide-assessment training on rural K–12 school counselors. The first objective was to explore the impact of IPT-based suicide-assessment training on rural K–12 school counselors’ knowledge of IPT-based suicide assessment. The study’s second objective was to determine whether IPT-based suicide-assessment training could impact rural K–12 school counselors’ suicide intervention self-efficacy.

There are two reasonable explanations for the increased knowledge of K–12 rural school counselors. One is that participants came into the study with an understanding of suicide assessment, presumably informed by prior experience as a counselor. New material and a new theory for risk assessment perhaps caused a loss of equilibrium and foundational understanding—meaning that, to restore equilibrium, participants had to combine previous and novel information to form an improved cognitive schema allowing space for new skill acquisition (Smith, 2002). A second

explanation is that rural school counselors learned through watching another counselor interpret and model the use of the new material. Research has shown that modeling is especially effective if the model is perceived to be similar to the observer (Zimmerman, 1989). Indeed, in the Zimmerman (1989) study, the trainer, who served as the model for new behavior and skills, was in the counseling profession, so it is likely participants found significant commonalities between themselves and the trainer. However, the first rationale for increased knowledge is more practical, as the modeling present in the training was not significant enough in time or depth to create increased knowledge for IPT among all participants.

There are three reasons why these self-efficacy results might have lacked any significant change among rural K–12 school counselors. The first reason is that participants were already practicing counselors in the field, enjoying an ingrained risk assessment acquired through education or experience in the field. A study published in the *American Educational Research Journal* found no change in self-efficacy after 191 participants completed an advanced teaching course. The study proposed that teacher training for those already in the field could have positive and negative effects on overall teacher self-efficacy, but that these effects were likely subtle and difficult to untangle (Hay & Woolfolk, 1990). In regards to the current study, participants were, in other words, unlikely to feel they had improved self-efficacy created over years of counseling work due merely to a three-session training on a specific suicide-assessment theory.

According to social cognitive theory, self-efficacy is influenced by four primary sources: vicarious experience, physiological arousal, verbal persuasion, and mastery experience (Bandura, 1997). The training for the present study may have been insufficient to impact an already developed self-efficacy among these participants. A second explanation is that participants felt they had already utilized the skills presented during the

training and therefore saw neither an increase nor a decrease in their overall mastery of skills related to suicide assessment. Lastly, it is possible that rural school counselors were too distracted and encumbered by the multimedia platform through which the training was presented. That is, perhaps the difficulty of learning remotely contributed to the extent that participants did not feel they had gained anything contributing to their sense of efficiency. Considering the above, the first reason appears most logical, because participants acknowledged that IPT was a new experience for them, and they had few, if any, complaints about the remote nature of the learning environment.

Limitations

Potential limitations to this study include history and generalizability. In terms of history, school counselors may have received training around suicide theory or assessment, formally or informally, between pretest and posttest evaluations. Suicide prevention is mentioned more and more in mainstream media, and various school-based programs now make a point of addressing suicide assessment in academic settings. Thus, education on matters regarding suicide, offered to participants within their school districts during this study, could have impacted overall results. In terms of the second limitation, study outcomes are not generalizable to all school populations, because participants were K–12 school counselors in rural communities; urban school counselors, for example, might have responded differently, perhaps entering the training with a different knowledge base and degree of confidence in suicide assessment compared to their rural counterparts. Participants in this study also took assessments more than once, which could have influenced results.

Implications

Future research should employ a larger sample size to improve generalizability. Location of rural-school counselor participants could also be varied, perhaps allowing for comparisons between

areas of the United States and even according to degrees of “ruralness.” In-person training could also be compared to more remote training when assessing whether technology has any impact on training outcomes—and future research might consider the prior experience of school counselors when evaluating a certain baseline background or skill set affecting IPT-focused training. Finally, it would be fruitful to study urban school counselors, especially because their knowledge and self-efficacy could be significantly different due to their proximity to mental health professionals and other suicide-risk referral sources.

School counselors, especially rural counselors who may not have easy access to mental health referrals, should receive ongoing training and education around suicide risk and assessment. Trainings could be provided at various times and in a variety of ways. Regular staff meetings could contain brief presentations on suicide risk factors, and biannual onsite or offsite trainings could give professionals in the field of suicide risk the opportunity to speak to faculty. Webinars, books, and online videos on suicide assessment are easily accessible, at low or no cost, allowing school counselors to participate in self-regulated learning. So, too, are there numerous books on suicide assessment that could be made available to staff and faculty. Because rural school counselors practicing in remote areas may not feel efficacious in terms of suicide assessment and/or may not have the knowledge to accurately assess risk level, it is important that they know where to look for professional guidance. School counselors must be knowledgeable on community-based mental health referrals and should feel comfortable providing such referrals to students and parents.

Conclusion

The results of the present study showed that IPT-based suicide-assessment training increased knowledge of IPT-based suicide assessment in rural K–12 school counselors. That

said, after participating in the training, rural school counselors showed no change in suicide-assessment self-efficacy. Findings from this study suggest rural school counselors can learn IPT-based suicide-assessment skills through remote training. Future studies should explore school counselor self-efficacy and the factors evoking change with respect to this variable among this population.

References

- American Association of Suicidology. (2014). Recognizing and responding to suicide risk pricing. Retrieved from <http://www.suicidology.org/training-accreditation/recognizing-responding-suicide-risk/pricing>
- Armstrong, L. L., & Manion, I. G. (2006). Suicidal ideation in young males living in rural communities: Distance from school as a risk factor, youth engagement as a protective factor. *Vulnerable Children and Youth Studies, 1*(1), 102–113. <https://doi.org/10.1080/17450120600659010>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman & Company.
- Barlow, D. H., Hersen, M., & Jackson, M. (1973). Single-case experimental designs: Uses in applied clinical research. *Archives of General Psychiatry, 29*(3), 319–325. <https://doi.org/10.1001/archpsyc.1973.04200030017003>
- Biglan, A., Ary, D., & Wagenaar, A. C. (2000). The value of interrupted time-series experiments for community intervention research. *Prevention Science, 1*(1), 31–49. <http://dx.doi.org/10.1023/A:1010024016308>
- Boylan, M. (2001). *The self-efficacy of Irish Guidance Counsellors for identifying and assessing students at risk for suicide*. Corvallis, OR: Oregon State University. Retrieved from: https://ir.library.oregonstate.edu/concern/graduate_thesis_or_dissertations/cz30pv98m
- Branas, C. C., Nance, M. L., Elliot, M. R., Richmond, T. S., & Schwab, W. (2004). Urban–rural shifts in intentional firearm deaths: Different causes, same results. *American Journal of Public Health, 94*(10), 1750–1755. <https://doi.org/10.2105/AJPH.94.10.1750>
- Bryan, C. J., & Cukrowicz, K. C. (2011). Associations between types of combat violence and the acquired capability for suicide. *Suicide and Life-Threatening Behavior, 41*(2), 126–136. <https://doi.org/10.1111/j.1943-278X.2011.00023.x>
- Centers for Disease Control and Prevention. (2016). Suicide prevention—youth suicide. Retrieved from http://www.cdc.gov/violenceprevention/publications/youth_suicide.html
- Chopko, B. A., Palmieri, P. A., & Facemire, V. C. (2014). Prevalence and predictors of suicidal ideation among U.S. law enforcement officers. *Journal of Police and Criminal Psychology, 29*(1), 1–9. <https://psycnet.apa.org/doi/10.1007/s11896-013-9116-z>
- Christ, T. J. (2007). Experimental control and threats to internal validity of concurrent and nonconcurrent multiple baseline designs. *Psychology in the Schools, 44*(5), 451–459. <https://doi.org/10.1002/pits.20237>
- Christensen, H., Batterham, P. J., Soubelet, A., & Mackinnon, A. J. (2013). A test of the interpersonal theory of suicide in a large community-based cohort. *Journal of Affective Disorders, 144*, 225–234. <https://doi.org/10.1016/j.jad.2012.07.002>
- Crepeau-Hobson, F. (2013). An exploratory study of suicide risk assessment practices in the school setting. *Psychology in the Schools, 50*(8), 810–822. <https://doi.org/10.1002/pits.21705>
- Cross, W., Matthieu, M. M., Cerel, J., & Knox, K. L. (2007). Proximate outcomes of gatekeeper training for suicide prevention in the workplace. *Suicide and Life-Threatening Behavior, 37*(6), 659–670. <https://doi.org/10.1521/suli.2007.37.6.659>
- 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/10.1027/02275910/a000014>
- da Silva Cais, C. F., da Silveira, I. U., Stefanello, S., & Botega, N. J. (2011). Suicide prevention training for professionals in the public health network in a large Brazilian city. *Archives of Suicide Research*, 15(4), 384–389.
<https://doi.org/10.1080/13811118.2011.616152>
- Debski, J., Spadafore, C. D., Jacob, S., Poole, D. A., & Hixson, M. D. (2007). Suicide intervention: Training, roles, and knowledge of school psychologists. *Psychology in the Schools*, 44, 157–170.
<https://doi.org/10.1002/pits.20213>
- Dudley, M., Kelk, N., Florio, T., Walters, B., Howard, J., & Taylor, D. (1998). Coroners' records of rural and non-rural cases of youth suicide in New South Wales. *Australian and New Zealand Journal of Psychiatry*, 32, 242–251.
<https://doi.org/10.3109/00048679809062735>
- Dunn, M. S., Goodrow, B., Givens, C., & Austin, S. (2008). Substance use behavior and suicide indicators among rural middle school students. *Journal of School Health*, 78(1), 26–31.
<https://doi.org/10.1111/j.1746-1561.2007.00262.x>
- Evans, W., Smith, M., Hill, G., Albers, E., & Neufeld, J. (1996). Rural adolescent views of risk and protective factors associated with suicide. *Crisis Intervention and Time-Limited Treatment*, 3(1), 1–12.
- Feldman, B., & Freedenthal, S. (2006). Social work education in suicide intervention and prevention: An unmet need? *Suicide and Life-Threatening Behavior*, 36(4), 467–480.
<https://doi.org/10.1521/suli.2006.36.4.467>
- Fry, J. (2012). Suicide awareness and prevention training in a high security setting. *Mental Health Practice*, 15(6), 25–31.
<https://doi.org/10.7748/mhp2012.03.15.6.25.c8980>
- Gamm, L. D., Hutchison, L. L., Dabney, B. J., & Dorsey, A. M. (2003). *Rural healthy people 2010* (Vols. 1 and 2). Retrieved from Southwest Rural Health Research Center School of Rural Public Health, The Texas A&M University System Health Science Center website:
<https://www.ruralhealthresearch.org/projects/286>
- Gast, D. L. (2010). *Single subject research methodology in behavioral sciences*. New York, NY: Routledge.
- Gast, D. L., Lloyd, B. P., & Ledford, J. R. (2014). Multiple baseline and multiple probe designs. In D. L. Gast, & J. R. Ledford (Eds.), *Single case research methodology: Applications in special education and behavioral sciences* (2nd ed., pp. 251–296). New York, NY: Routledge.
- Glenn, J. J., Michel, B. D., Franklin, J. C., Hooley, J. M., & Nock, M. K. (2014). Pain analgesia among adolescent self-injurers. *Psychiatry Research*, 220(3), 921–926.
<https://doi.org/10.1016/j.psychres.2014.08.016>
- Goodpaster, K. P., Adedokun, O. A., & Weaver, G. C. (2012). Teachers' perceptions of rural STEM teaching: Implications for rural teacher retention. *Rural Educator*, 33(3), 9–22. Retrieved from
<https://eric.ed.gov/?id=EJ987621>
- Gruman, D. H., Marston, T., & Koon, H. (2013). Bringing mental health needs into focus through school counseling program transformation. *Professional School Counseling*, 16(5), 333–341.
<https://doi.org/10.1177/2156759X1201600506>
- Hawkins, K. A., Hames, J. L., Ribeiro, J. D., Silva, C., Joiner, T. E., Jr., & Coughle, J. R. (2014). An examination of the relationship between anger and suicide risk through the lens of the interpersonal theory of suicide. *Journal of Psychiatric Research*, 50, 59–65.

- <https://doi.org/10.1016/j.jpsychires.2013.12.005>
- Hay, W., & Woolfolk, A. (1990). Socialization of student teachers. *American Educational Research Journal*, 27(2), 279–300. <https://doi.org/10.3102/00028312027002279>
- Health Resources & Services Administration. (2019). Health Professional Shortage Area (HPSA) Application and Scoring Process. Retrieved from <https://bhwh.hrsa.gov/shortagedesignation/hpsa-process>
- Hereon, M., & Barlow, D. H. (1976). *Single case experimental designs: Strategies for studying behavioral change*. Boston, MA: Pearson.
- Hyman, J., Ireland, R., Frost, L., & Cottrell, L. (2012). Suicide incidence and risk factors in an active duty US military population. *American Journal of Public Health*, 102(S1), S138–S146. <https://doi.org/10.2105/AJPH.2011.300484>
- Ilgen, M., Kleinberg, F., Ignacio, R., Bohnert, A., Valenstein, M., McCarthy, J., & Katz, I. (2013). Noncancer pain conditions and risk of suicide. *JAMA Psychiatry*, 70(7), 692–697. <https://doi.org/10.1001/jamapsychiatry.2013.908>
- Jacobson, J., Osteen, P., Sharpe, T., & Pastoor, J. (2012). Randomized trial of suicide gatekeeper training for social work students. *Research on Social Work Practice*, 22(3), 270–281. <https://doi.org/10.1177/1049731511436015>
- Joiner, T. E., Jr., Van Orden, K. A., Witte, T. K., & Rudd, M. D. (2009). *The interpersonal theory of suicide: Guidance for working with suicidal clients*. Washington, DC: American Psychological Association.
- Juster, F. T., Ono, H., & Stafford, F. P. (2004). *Changing times of American youth: 1981–2003*. Ann Arbor, MI: Institute for Social Research, University of Michigan.
- Kanzler, K. E. B., Craig, J., McGeary, D. D., & Morrow, C. E. (2012). Suicidal ideation and perceived burdensomeness in patients with chronic pain. *Pain Practice*, 12(8), 602–609. <https://doi.org/10.1111/j.1533-2500.2012.00542.x>
- King, K. A., Price, J. H., Telljohann, S. K., & Wahl, J. (1999). High school health teachers' perceived self-efficacy in identifying students at risk for suicide. *Journal of School Health*, 69(5), 202–207. <https://doi.org/10.1111/j.1746-1561.1999.tb06386.x>
- King, K., Vidourek, R., & Strader, J. (2008). University students' perceived self-efficacy in identifying suicidal warning signs and helping suicidal friends find campus intervention resources. *Suicide and Life-Threatening Behavior*, 38(5), 608–617. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1521/suli.2008.38.5.608>
- Lane, J. D., & Gast, D. L. (2014). Visual analysis in single case experimental design studies: Brief review and guidelines. *Neuropsychological Rehabilitation*, 24(3-4), 445–463. <https://doi.org/10.1080/09602011.2013.815636>
- Liebling-Boccio, D. E., & Jennings, H. R. (2013). The current status of graduate training in suicide risk assessment: Training in suicide risk assessment. *Psychology in the Schools*, 50(1), 72–86. <https://doi.org/10.1002/pits.21661>
- Luntamo, T., Sourander, A., Gyllenberg, D., Sillanmäki, L., Aromaa, M., Tamminen, T., & Piha, J. (2014). Do headache and abdominal pain in childhood predict suicides and severe suicide attempts? Finnish nationwide 1981 birth cohort study. *Child Psychiatry & Human Development*, 45(1), 110–118. <https://doi.org/10.1007/s10578-013-0382-x>
- Matthieu, M., & Hensley, M. (2013). Gatekeeper training outcomes: Enhancing the capacity

- of staff in substance abuse treatment programs to prevent suicide in a high risk population. *Mental Health and Substance Use*, 6(4), 274–286.
<https://doi.org/10.1080/17523281.2012.744342>
- McCarthy, J. F., Blow, F. C., Ignacio, R. V., Ilgen, M. A., Austin, K. L., & Valenstein, M. (2012). Suicide among patients in the Veterans Affairs health system: Rural–urban differences in rates, risks, and methods. *American Journal of Public Health*, 102(S1), S111–S117.
<https://doi.org/10.2105/AJPH.2011.300463>
- McNiel, D., Fordwood, S., Weaver, C., Chamberlain, J., Hall, S., & Binder, R. (2008). Effects of training on suicide risk assessment. *Psychiatric Services*, 59(12), 1462–1465.
<https://doi.org/10.1176/appi.ps.59.12.1462>
- McWilliams, L., Wilson, K., Kowal, J., Henderson, P. R., & Peloquin, K. (2013). Chronic pain and the interpersonal theory of suicide. *Rehabilitation Psychology*, 58(1), 111–115.
<http://doi.org/10.1037/a0031390>
- Murphy, S. M. (2014). Determinants of adolescent suicidal ideation: Rural versus urban. *Journal of Rural Health*, 30(2), 175–185.
<https://doi.org/10.1111/jrh.12042>
- Nance, M. L., Carr, B. G., Kallan, M. J., Branas, C. C., & Wiebe, D. J. (2010). Variation in pediatric and adolescent firearm mortality rates in rural and urban US counties. *Pediatrics*, 125(6), 1112–1118.
<https://doi.org/10.1542/peds.2009-3219>
- National Institute of Mental Health, U.S. Department of Health and Human Services (2010). Suicide in America: Frequently asked questions. Retrieved from <http://www.nimh.nih.gov/health/publications/suicide-in-america/index.shtml#pub4>
- Neimeyer, R. A. (2001). Personal and professional factors and suicide intervention skills. *Suicide and Life-Threatening Behavior*, 31(1), 71–82.
<https://doi.org/10.1521/suli.31.1.71.21307>
- Okifuji, A., & Benham, B. (2011). Suicidal and self-harm behaviors in chronic pain patients. *Journal of Applied Biobehavioral Research*, 16(2), 57–77.
<https://doi.org/10.1111/j.1751-9861.2011.00065.x>
- Ookla, LLC (2015). *Speedtest.net - The Global Broadband Speed Test*. Seattle, WA: Author. Retrieved from <https://www.speedtest.net/>
- Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: Nonoverlap of all pairs. *Association for Behavioral and Cognitive Therapies*, 40, 357–367.
<https://doi.org/10.1016/j.beth.2008.10.006>
- Peden, A. R., Reed, D. B., & Rayens, M. K. (2005). Depressive symptoms in adolescents living in rural America. *Journal of Rural Health*, 21(4), 310–316.
<http://dx.doi.org/10.1111/j.1748-0361.2005.tb00100.x>
- Pisani, A. R., Cross, W. F., & Gould, M. S. (2011). The assessment and management of suicide risk: State of workshop education. *Suicide and Life-Threatening Behavior*, 41(3), 255–276. <https://dx.doi.org/10.1111%2Fj.1943-278X.2011.00026.x>
- Pustejovsky, J. E., Hedges, L. V., & Shadish, W. R. (2014). Design-comparable effect sizes in multiple baseline designs: A general modeling framework. *Journal of Educational and Behavioral Statistics*, 39(5), 368–393.
<https://doi.org/10.3102/1076998614547577>
- Qualtrics (Version 2015) [Computer software]. Provo, UT: Qualtrics Lab, Inc.
- Reis, C., & Cornell, D. (2008). An evaluation of suicide gatekeeper training for school counselors and teachers. *Professional School Counseling*, 11(6), 386–394.
<https://doi.org/10.1177%2F2156759X0801100605>
- Robinson, J., Cox, G., Malone, A., Williamson, M., Baldwin, G., Fletcher, K., & O'Brien, M. (2013). A systematic review of school-

- based interventions aimed at preventing, treating, and responding to suicide-related behavior in young people. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 34(3), 164–182.
<https://doi.org/10.1027/0227-5910/a000168>
- Sankaranarayanan, A., Carter, G., & Lewin, T. (2010). Rural–urban differences in suicide rates for current patients of a public mental health service in Australia. *Suicide and Life-Threatening Behavior*, 40(4), 376–382. Retrieved from
<https://onlinelibrary.wiley.com/doi/abs/10.1521/suli.2010.40.4.376>
- Schmitz, W. M., Allen, M. H., Feldman, B. N., Gutin, N. J., Jahn, D. R., Kleespies, P. M., & Simpson, S. (2012). Preventing suicide through improved training in suicide risk assessment and care: An American Association of Suicidology task force report addressing serious gaps in U.S. mental health training. *Suicide and Life-Threatening Behavior*, 42(3), 292–304.
<https://doi.org/10.1111/j.1943-278X.2012.00090.x>
- Searles, V. B., Valley, M. A., Hedegaard, H., & Betz, M. E. (2014). Suicides in urban and rural counties in the United States, 2006–2008. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 35(1), 18–26. <https://doi.org/10.1027/0227-5910/a000224>
- Slaven, J., & Kisely, S. (2002). The Esperance primary prevention of suicide project. *Australian and New Zealand Journal of Psychiatry*, 36(5), 617–621.
<https://doi.org/10.1046/j.1440-1614.2002.01074.x>
- Smith, M. K. (2002). Malcolm Knowles, informal adult education, self-direction and andragogy. Retrieved from
www.infed.org/thinkers/et-knowl.htm
- Smith, P. N., Cukrowicz, K. C., Poindexter, E. K., Hobson, V., & Cohen, L. M. (2010). The acquired capability for suicide: A comparison of suicide attempters, suicide ideators, and non-suicidal controls. *Depression and Anxiety*, 27(9), 871–877.
<https://doi.org/10.1002/da.20701>
- Sockalingam, S., Flett, H., & Bergmans, M. Y. (2010). A pilot study in suicide intervention training using a group intervention for patients with recurrent suicide attempts. *Academic Psychiatry*, 34(2), 132–135.
<https://doi.org/10.1176/appi.ap.34.2.132>
- Taub, D. J., Servaty-Seib, H. L., Miles, N., Lee, J.-Y., Morris, C. A. W., Prieto-Welch, S. L., & Werden, D. (2013). The impact of gatekeeper training for suicide prevention on university resident assistants. *Journal of College Counseling*, 16(1), 64–78.
<https://doi.org/10.1002/j.2161-1882.2013.00027.x>
- Timmons, K. A., Selby, E. A., Lewinsohn, P. M., & Joiner, T. E., Jr. (2011). Parental displacement and adolescent suicidality: Exploring the role of failed belonging. *Journal of Clinical Child & Adolescent Psychology*, 40(6), 807–817.
<https://doi.org/10.1080/15374416.2011.614584>
- Tompkins, T. L., & Witt, J. (2009). The short-term effectiveness of a suicide prevention gatekeeper training program in a college setting with residence life advisers. *The Journal of Primary Prevention*, 30(2), 131–149. <https://doi.org/10.1007/s10935-009-0171-2>
- U.S. Department of Education. (2013). The status of rural education. Retrieved from
http://nces.ed.gov/programs/coe/indicator_tla.asp
- Vannest, K. J., Parker, R. I., & Gonen, O. (2011). Single Case Research: Web-based calculators for SCR analysis. (Version 1.0) [Web-based application]. College Station, TX: Texas A&M University. Retrieved from <http://www.singlecaseresearch.org>
- Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner, T. E., Jr. (2006). Perceived

- burdensomeness as an indicator of suicidal symptoms. *Cognitive Therapy and Research*, 30(4), 457–467.
<https://doi.org/10.1007/s10608-006-9057-2>
- Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E., Jr. (2008). Suicidal desire and the capability for suicide: Tests of the interpersonal-psychological theory of suicidal behavior among adults. *Journal of Consulting and Clinical Psychology*, 76(1), 72–83.
<https://doi.org/10.1037/0022-006X.76.1.72>
- Van Tilburg, M. A. L., Spence, N. J., Whitehead, W. E., Bangdiwala, S., & Goldston, D. B. (2011). Chronic pain in adolescents is associated with suicidal thoughts and behaviors. *Journal of Pain*, 12(10), 1032–1039.
<https://doi.org/10.1016/j.jpain.2011.03.004>
- Watson, P. J., & Workman, E. A. (1981). The non-concurrent multiple baseline across-individuals design: An extension of the traditional multiple baseline design. *Journal of Behavior Therapy and Experimental Psychiatry*, 12(3), 257–259.
[https://doi.org/10.1016/0005-7916\(81\)90055-0](https://doi.org/10.1016/0005-7916(81)90055-0)
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329–339.
<http://doi.org/10.1037/0022-0663.81.3.329>
- Zoom Video Communications. (2019). Zoom [software]. San Jose, CA: Author.
 Retrieved from <https://zoom.us/>

Figure 1. Individual Pretest and Posttest Scores for Knowledge

Figure 2. Self-Efficacy Test Scores Over Time