

SURVEY OF SUICIDE PREVENTION FOR RESIDENT ADVISORS AT A STATE UNIVERSITY:  
THE IMPACT OF TRAINING ON KNOWLEDGE, ATTITUDES, PERCEIVED COMPETENCY,  
PERCEIVED ROLE RESPONSIBILITY, AND INTERVENTION BEHAVIOR

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## ABSTRACT

Paula Kathleen Zatzko: Survey of Suicide Prevention for Resident Advisors at a State University: The Impact of Training on Knowledge, Attitudes, Perceived Competency, Perceived Role Responsibility, and Intervention Behavior  
(Under the direction of Kylee Miller)

Suicide is the tenth ranking cause of death in the United States (CDC, 2015); however, alarmingly, suicide is the second leading cause of death in the fifteen to twenty-four age group (CDC, 2015). Drum et al. (2009) surveyed undergraduate students (n = 15,010) from seventy U.S. colleges and universities. The researchers found that in one year, 6% of the students (n = 910) seriously considered suicide (Drum et al., 2009). There is a growing body of research on suicide prevention trainings for resident advisors (RA) on college campuses, but there is no standardized training curriculum and each university goes about training their RAs differently (Parries, 2014).

This study used a quantitative design to explore the role of resident advisors as suicide prevention gatekeepers on the University of North Carolina at Chapel Hill (UNC-CH) campus. The study assessed RAs' suicide-related knowledge, attitudes toward suicide and mental health treatment, perceived role responsibility in terms of suicide prevention, perceived competency to handle situations concerning suicide, and suicide-specific intervention behaviors. This information was gathered through three surveys: one before the summer UNC-CH RA training, one three days after the training, and one three months after the training.

Results of the study showed that number of years served as RAs does not significantly influence their suicide prevention intervention behavior count. On the other hand, gender does significantly affect RAs' attitude toward suicide prevention and mental health treatment. Results also showed that, over the course of the semester, RAs' attitudes toward suicide, their suicide-related knowledge, how competent they feel responding to suicide-related situations, and their intervention behaviors increased. Both perceived competency and intervention behaviors increased significantly. A predictive analysis showed that knowledge, competency, attitude, and role responsibility predicted intervention behavior. Attitude best explained intervention behavior whereas, responsibility was least likely to explain it. Overall, the results of the study support the continued need for a suicide-prevention curriculum as a part of RA training.

To my mother, whose support and love got me where I am today.

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## LIST OF ABBREVIATIONS

AAS	American Association of Suicidology
AFSP	American Foundation for Suicide Prevention
ANOVA	Analysis of Variance
ASIST	Applied Suicide Intervention Skills
ATTS	Attitudes toward Suicide scale
BCD	Behind Closed Doors
CAPS	Campus and Psychological Services
CDC	Centers for Disease Control
DHRE	Department of Housing and Residential Education
HT	Hopelessness Theory of Suicide
IASMHS	Inventory of Attitudes toward Seeking Mental Health Services
IPTS	Interpersonal-Psychological Theory of Suicidal Behavior
IRB	Institutional Review Board
MANOVA	Multivariate Analysis of Variance
NAMI	National Alliance on Mental Illness
NIMH	National Institute for Mental Health
RA	Resident Advisor
SAMHSA	Substance Abuse and Mental Health Services Administration
SOQ	Suicide Opinion Questionnaire
SPEAKS-S	Suicide Prevention Exposure, Awareness, and Knowledge Survey student survey
SPRC	Suicide Prevention Resource Center

STB	Suicidal Thoughts and Behaviors
TPB	Theory of Planned Behavior
UNC-CH	University of North Carolina at Chapel Hill
WHO	World Health Organization

## **Chapter I: Introduction**

Suicide is the tenth ranking cause of death in the United States (CDC, 2015); however, alarmingly, suicide is the second leading cause of death in the fifteen to twenty-four age group (CDC, 2015). In the article, "U.S.A. Suicide 2015: Official Final Data," Drapeau and McIntosh (2016) obtained their data from the Centers for Disease Control and Prevention's national mortality database. In 2015, the number of deaths by suicide among all age groups was 44,193; with 121.1 completed suicides a day (CDC, 2015). The number of deaths by suicide in the fifteen to twenty-four age group was 5,491 in 2015, with an estimated fifteen completed suicides a day (CDC, 2015). The number of deaths by suicide in the eighteen to twenty-four age group was 4,505 in 2015, with an estimated twelve completed suicides a day (CDC, 2015). Youth suicide rates have been increasing each year since 2006 (Drapeau & McIntosh, 2016). Given the high prevalence of suicide in young adults, the youth population is the focus of this study. The eighteen to twenty-four age group is often referred to as "youth" or "young adults," so for purposes of this paper, the terms will be used interchangeably.

Estimates show that for every one completed suicide, there are twenty-five attempted suicides in the general population (Drapeau & McIntosh, 2016). According to a 2015 Substance Abuse and Mental Health Services Administration study (2016), in the young adult population alone, it is estimated that for every one completed suicide, there are 100-200 suicide attempts (Drapeau & McIntosh, 2016). Estimates are most likely lower than reality because not every suicide attempt is reported. Suicide prevention efforts must

take into account the large number of youth exhibiting suicidal behavior and target college campuses where significant populations of young adults live in close proximity to one another.

Over time, the responses of undergraduate institutions to student suicide on their campuses have changed. Suicide was not always considered a problem on college campuses, but in response to a public broadcast in 1977, this attitude began to change (Hendrickson & Cameron 1975; Hirsh, 1978; Brown, 2014). The aforementioned broadcast, *College Can Be Killing*, was about an attempted suicide that occurred at Northwestern University in 1977 (Hirsh, 1978; Brown, 2014). In this broadcast produced by Michael Hirsh (1977), an undergraduate who attempted suicide spoke about his experiences surrounding the attempt. This put universities in the public spotlight and they became motivated to prevent student suicide on their campuses. After the airing of *College Can Be Killing*, in the 1980s, colleges became more involved with suicide prevention efforts and began training “student affairs, health services, counseling, and housing staffs” on issues surrounding student suicide (Jobes et al. 1997; Brown, 2014). In an effort to prevent student suicide on their campuses, universities began training resident advisors to refer suicidal students for professional help.

In his research, Gallagher (2015) concluded that across 275 American universities, representing 3.3 million students, 125 college students died by suicide in 2014. Even though the number of students who committed suicide is lower than what would be expected based on national data from the CDC (2015), it is still vital to provide suicide prevention interventions to the college student population due to the high rate of suicidal ideations in the population (Gallagher, 2015). Focusing suicide prevention efforts on

college campuses allows for a concentrated population of at risk-students to be reached, which will hopefully help reduce the number of students considering suicide. Drum et al. (2009) surveyed undergraduate students (n = 15,010) and graduate students (n = 11, 441) from seventy U.S. colleges and universities. The researchers found that in one year, 6% of undergraduate students (n = 910) seriously considered suicide (Drum et al., 2009). 69% of the undergraduate students who considered suicide also reported having repeated suicidal thoughts, and 19% gathered the material needed to kill themselves in preparation for a suicide attempt (Drum et al., 2009; Rallis, 2017). The aforementioned studies attest to the significant risk faced by students and show the necessity of effective suicide prevention interventions on college campuses. It is vital to identify and treat students exhibiting suicidal thoughts and behaviors (STB) to reduce the likelihood of suicide attempts.

Another important reason for suicide prevention efforts at universities is because of the contagion effect. Contagion is a phenomenon in which the exposure to suicide or suicidal behavior influences others to consider suicide (Davidson & Gould, 1989; O'Carroll et al., 1994). College campuses are particularly susceptible to suicide contagion effects because students usually live in close proximity to a large population of young adults, increasing likelihood of interactions with individuals who exhibit suicidal behavior. Universities should be aware of this phenomenon on their college campuses in order to best assess the risk and prevent student suicides. Since the number of colleges across America and the number of students attending college are steadily increasing, it is important to put effective suicide prevention measures in place on university campuses (U.S. Department of Education, 2016).



All colleges are potential targets for suicide prevention efforts. As of 2013, the United States had 4,726 colleges offering two and four-year degrees (U.S. Department of Education, 2016). It is predicted that there will be around 18.2 million undergraduate students enrolled in college in the year 2018, which would mean an increase of roughly 38.5% since the year 2000, and an increase of about 52% since the year 1990 (U.S. Department of Education, 2015). In 2014, there were about 3.2 million people in the eighteen to twenty-four age group in the United States, and 55% of them were enrolled in college (U.S. Department of Education, 2015). Focusing prevention efforts on college students in the eighteen to twenty-four age group can impact over half of individuals in that age cohort.

### **Resident Advisors**

A resident advisor (RA), or resident assistant, is typically an undergraduate student who applies for a position and is tasked to advise and supervise students in an appointed residence hall. Most American universities currently employ RAs (Bowman & Bowman, 1995; Taub & Servaty-Seib, 2011). Taub and Servaty-Seib (2011) explain that RAs' roles are complex, with some of their jobs being "interpret and enforce policy, plan and facilitate programming, mediate conflicts, serve as a knowledgeable referral source for campus resources, build community, and provide assistance with various problems" (Blimling, 2003; Upcraft, 1989; Winston & Buckner, 1984; p. 12)." In light of the social and academic pressures college students face and lack of access to support systems they may have established at home, arguably one of the most important jobs that an RA has is to identify students in psychological distress and to connect them with available mental health

resources (Boswinkel, 1986; Sharkin, Plageman, & Mangold, 2003; Taub & Servaty-Seib, 2011).

Students typically spend much of their time in the residence halls, and due to RAs close proximity to the residents, they often serve as the first line of defense for student suicide (Levine, 1994; Westefeld et al., 2006, Taub & Servaty-Seib, 2011). If RAs are the first line of defense, then they need to be educated on the warning signs for suicidal behavior (Westefeld et al., 2006). Grosz (1990) purports that an effective RA training program should include education on how to identify verbal, behavioral, and emotional signs of suicide (Tompkins & Witt, 2009). RAs often establish relationships and get to know their assigned residents, so RAs are in a good position to refer potentially suicidal residents for help. Unfortunately, if RAs do not know the warning signs of suicide or do not believe suicide is an issue on their campus, then they will not know how or when to get suicidal residents help.

Research has shown that youth are often reluctant to seek professional help for their suicidal behaviors and are often reluctant to speak to adults about these issues (Rallis, 2017). Young adults are more willing to approach a peer about their behaviors and often consult their friends before seeking help (Reavley et al., 2012; Vogel et al., 2009; Vogel, Wade, Wester, Larson, & Hackler, 2007; Vogel & Wei, 2005; Czyz et al., 2013). Still, there are barriers that prevent students from seeking help for their suicidal thoughts and behaviors.

Some of the most commonly reported reasons that young adults might not seek help from professionals is a belief that they do not need treatment, a lack of time, the preference of managing their distress on their own, and the stigma of mental illness (Czyz et al.,

2013). D'Amico et al. (2016) found that the decision of young adults to seek help is often influenced by their parents' and peers' attitudes toward mental illness and help-seeking. If young adults feel that their family and friends would approve of their intention to seek professional help, they are more likely to consider doing so (Vogel & Wei, 2005; Czyz et al., 2013). If they feel unsupported or that their friends would think them "weak or crazy," then young adults report having less intention to seek help (Czyz et al., 2013).

In addition to providing counseling, university psychological services centers sometimes offer support groups and information on mental health wellness (D'Amico et al., 2016). D'Amico et al. (2016) write that many college students do not attend university counseling centers to seek help when they are suicidal. University counseling centers can be helpful for students experiencing psychological distress; however, young adults typically underutilize this resource (Eisenberg, Golberstein, & Gollust, 2007; D'Amico et al., 2016). In 2012, the National Alliance on Mental Illness (NAMI), a large national organization for people affected by mental illness, reported that of young adults who left college due to mental health reasons, 45% (n = 765) never sought help from the counseling center on their campus. Since RAs are both peers and paraprofessionals, they are in an optimal position to detect students who are potentially suicidal and to refer them to mental health resources, such as counseling.

RAs are considered paraprofessionals and are typically expected to provide students in distress referrals for professional help, but first, RAs need to know the warning signs to identify students who need help (Blimling, 2003; Reingle, Thombs, Osborn, Saffian, & Oltersdorf, 2010; Parries, 2014, p. 13). In order for RAs to help potentially suicidal students, RAs need to be able to recognize the warning signs of suicide, know how to

intervene, and who to direct the students to. One way to meet those needs is by training RAs to effectively handle these situations; unfortunately, not all universities do this.

### **Suicide Prevention Training**

There is no standardized training curriculum on suicide prevention for RAs, and each university goes about training their RAs differently (Parries, 2014). One approach to suicide prevention is gatekeeper training, a universal suicide prevention program with three primary goals as defined by the Centers for Disease Control DC (1992; Rallis, 2017). The goals of gatekeeper training are “(a) reduce risk factors for suicide, (b) increase protective factors against suicide, and (c) promote early detection of a crisis and utilization of existing mental health resources” (CDC, 1992; Rallis, 2017, p. 63). Gatekeepers are individuals who are often in close proximity with people at risk for suicide. Gatekeeper training is meant to teach gatekeepers how to recognize the signs and symptoms of suicide and to respond appropriately to suicidal individuals (Swanke & Buila, 2010; Cascamo, 2013).

In a study that examined RAs’ experiences with potentially suicidal students, Bender (2013) examined RAs’ comfort in working with students at-risk for suicide, ability to identify at-risk students, and actions taken when working with students at-risk. Bender found that RAs who had suicide prevention training and who could identify warning signs of suicide were less reluctant to intervene with potentially suicidal students than the RAs who were not trained and could not identify the warning signs.

Gatekeeper training can positively affect RAs’ perceived competency in handling suicidal situations as well as help-seeking attitudes; however, there is little research into

the relationship between RAs' perceived competency and knowledge, and their intervention behavior (Tompkins & Witt, 2009; Isaac et al., 2009; Ritts, 2016). In a study of 240 college students from six private institutions in the Pacific Northwest, 36% of participants reported only being "a little likely" to confront a student about suicide in a hypothetical scenario, and 68% of the participants reported being "very likely" to encourage the student to get help (Tompkins & Witt, 2009, p. 140-141).

Tompkins and Witt 's (2009) study shows that even if RAs think they have sufficient training on suicide prevention, it does not mean that they will approach residents who are showing warning signs of suicide and refer them for help. Thus, it is unclear whether current gatekeeper trainings are effective in increasing the likelihood of intervening with potentially suicidal students. There is a need for further research to determine what factors, such as knowledge of suicide or attitudes toward suicide, influence RAs' intervention behaviors.

There has been research on RAs' knowledge, attitudes, perceived role responsibility, and perceived competency in regards to suicide prevention on college campuses, but no research has examined this at the University of North Carolina at Chapel Hill (UNC-CH). This study gathered data on RAs' suicide-related knowledge, attitudes toward suicide and mental health treatment, perceived competency in dealing with potentially suicidal students, perceived role responsibility as RAs, and their suicide-specific intervention behaviors. The results of this study could potentially affect policy regarding suicide prevention trainings for RAs at UNC-CH.



## **Chapter II: Literature Review**

### **Suicide**

In order to identify potentially suicidal individuals, gatekeepers should know the risk factors and warning signs of suicide. Gatekeepers are individuals who are frequently in close proximity to people at risk for suicide, which places them in a position to identify those at-risk and refer them for help. Risk factors of suicide are typically considered distal indicators of suicide risk, but sometimes they can be proximal (Franklin et al., 2017). Some suicide risk factors include prior suicide attempts, anticipated or actual losses or stresses (e.g. break-ups with a significant other, academic difficulties, legal issues), childhood abuse, and access to lethal means (AAS, 2015; AFSP, 2015; Franklin et al., 2017). Other risk factors of suicide are mental disorders (especially depression and substance abuse), physical or sexual abuse, serious or chronic physical health problems, exposure to suicide and suicide behaviors, and family history of mental health problems or suicide (AFSP, 2015; NIMH, 2015; Franklin et al., 2017).

Besides the risk factors listed above, the CDC (2015) lists hopelessness, impulsive tendencies, local suicide epidemics, barriers to mental health treatment (e.g. stigma), social isolation, and the belief that suicide is noble as suicide risk factors (Franklin et al., 2017). Some suicide risk factors that the World Health Organization (2015) notes are being a non-heterosexual, refugee, indigenous, or migrant person (Franklin et al., 2017). Other suicide risk factors for college students include an increased pressure to succeed, lack of effective coping skills, interpersonal difficulties, insomnia, academic stress,

fear of the stigma surrounding mental illness, and the loss of a previous support system and social network (Emory University, 2016; SPRC, 2014; AAS, 2016). Many reputable sources cite a prior suicide attempt as a risk factor for suicide (AAS, 2015; AFSP, 2015; CDC, 2015; NIMH, 2015; WHO, 2015; Franklin et al., 2017). Depression and substance abuse are two widely cited suicide risk factors (AFSP, 2015; CDC, 2015; NIMH, 2015; WHO, 2015; Franklin et al., 2017).

Warning signs of suicide are typically considered proximal indicators of suicide risk (Franklin et al., 2017). Some warning signs include talking about hurting or killing oneself, planning suicide, saying goodbye to people, and giving away prized possessions (AFSP, 2015; CDC, 2015; Franklin et al., 2017). Other warning signs of suicide include anxiety, increased substance use, hopelessness, social withdrawal, participation in risky behaviors, dramatic mood changes, rage, and the belief that there is no reason for living (AAS, 2015; CDC, 2015; NIMH, 2015; Franklin et al., 2017). A change in eating or sleeping patterns, a loss of interest in once enjoyable activities, and feeling like a burden are also considered suicide warning signs (CDC, 2015; Franklin et al., 2017). It is important to know the common warning signs of suicide because many individuals exhibit one or more before attempting or dying by suicide (Franklin et al., 2017). Knowing what to look for can help with identifying those in distress and referring them for appropriate mental health services.

College students face many obstacles that could negatively impact their mental health, but luckily, they often have access to mental health supports on campus (AAS, 2016). Many colleges require students to pay little to no money for personal counseling services, and some schools do not have a session limit (Gallagher, 2015; AAS, 2016). Other



than affordable mental health services on campuses, some protective factors of suicide for college students include a social support network, plans for the future, resiliency, physical exercise, feeling connected to the school community, religious affiliation, and problem solving skills (Emory University, 2016; SPRC, 2014; AAS, 2016). Resident advisors, professors, academic advisors, coaches, friends, and religious leaders might be included in a student's social support system on campus. (Emory University, 2016; SPRC, 2014; AAS, 2016). Protective factors can help mitigate risk factors for suicide; for example, if a student has attempted suicide in the past, the utilization of campus mental health services could protect the student from future suicidal behavior.

### **Demographics characteristics**

Gender, race, ethnicity, and sexual orientation/identity can contribute to suicide risk (SAMSHA, 2008; AFSP, 2017). American Indians and Alaskan Natives had the highest suicide death rate with 20 deaths per 100,000 people in 2015, and Whites had the second highest suicide rate with 17 deaths per 100,000 people. Per 100,000 people, Hispanics had a suicide death rate of 5.8, Asian and Pacific Islanders had a rate of 6.4, and Blacks had a rate of 5.6. In regards to suicide and gender disparities, men die by suicide three-and-a-half times more often than females, but females attempt suicide three times more often than males (AFSP, 2017).

Suicide death rates for the LGBTQ population are not known because sexual orientation and gender identity are not listed on death certificates (AFSP, 2012). Even though death rates for the LGBTQ population are unknown, those in the population are at higher risk for having suicidal thoughts and behaviors than the general population (AFSP, 2012). Within the LGBTQ community, the African American, Latino, Native American, and

Asian American subgroups have higher suicide attempt rates than other ethnic subgroups (AFSP, 2012). Population-based studies have linked the heightened risk of suicide attempts in the LGBTQ populations to higher rates of mental disorders, such as depression (Haas et al., 2010). Suicide rates across the population are not distributed equally across all demographic subgroups. Knowing the rates of suicidal thoughts and behaviors for each demographic group can help identify high-risk individuals and can enhance prevention efforts by tailoring programs suited to each group.

### **Theories of Suicide and Help-Seeking**

Theories that help explain suicide can assist in the formation of effective suicide prevention strategies. Understanding theory can help researchers decipher the underlying reasons why people commit suicide, which can help tailor prevention interventions to address the root causes. Theories provide a framework that can steer suicide prevention measures in the right direction. Looking at suicide prevention through different theoretical lenses can help fill the gap in our understanding of why students commit suicide or why they are reluctant to seek help. One such theory is the Interpersonal Psychological Theory of Suicidal Behavior (IPTB).

### **Interpersonal-psychological theory of suicidal behavior**

The Interpersonal-Psychological Theory of Suicidal Behavior proposes that unless an individual has the desire and the ability to die by suicide, they are not likely to do so (Joiner, 2005). Anestis et al. (2016) states that there are two psychological states related to one's desire for death; the two states are perceived burdensomeness and thwarted belongingness (Joiner, 2005). Perceived burdensomeness is "an individual's sense that he or she is a liability to others" and thwarted belongingness is "an individual's sense that he

or she lacks meaningful connections to others” (Anestis et al., 2016, p. 351). If an individual perceives oneself as burdensome and experiences thwarted belongingness, then they are more likely to want to commit suicide (Ritts, 2016). The interaction of the two states coupled with a hopelessness that the feelings are transient can lead to the emergence of suicidal ideation (Van Orden et al., 2010; Kleiman, Law, & Anestis, 2014). Other studies support the finding that the interaction of perceived burdensomeness and thwarted belongingness can predict suicidal ideation (Joiner et al., 2009; Van Orden et al., 2008; Kleiman, Law, & Anestis, 2014).

In Joiner’s IPTS, a third variable that is necessary for a person to die by suicide is the acquired capability for suicide (Kleiman, Law, & Anestis, 2014). One’s capability for suicide is acquired through exposure to painful or traumatic events, such as previous suicide attempts, non-suicidal self-injury, or combat exposure (Kleiman, Law, & Anestis, 2014). Studies have found a significant three-way interaction of perceived burdensomeness, thwarted belongingness, and the capability for suicide in predicting suicidal risk or behavior (Joiner et al., 2009; Anestis et al., 2011; Kleiman, Law, & Anestis, 2014). IPTS demonstrates the importance of social connection in reducing suicidal thoughts and behaviors (Ritts, 2016). Since RAs live in close proximity to students, RAs are a constant source of social connection for their residents. Therefore, RAs can serve as a protective factor for students at risk for suicide.

### **Hopelessness theory of suicide**

Alloy and Abramson’s hopelessness theory of suicide (HT) is a diathesis-stress model (Abramson et al., 1998). The diathesis-stress model proposes that environmental stressors or stressful life events can activate an individual’s predisposition to psychological

disorders (Carlson, 2011, p. 502). HT posits that individuals who are vulnerable to depression and suicide have a negative cognitive style, or attributional style. An attribution is a belief, or what a person believes to be the cause of an event. There are three dimensions to causal attributions: stable-unstable, internal-external, and global-specific. Attributions that are stable hold true across time and attributions that are unstable are temporary in nature. Attributions that are internal are inherent to a person and attributions that are external stem from the environment. Attributions that are global can affect many areas of a person's life and attributions that are specific affect only a specific situation. Individuals with a negative cognitive style tend to explain the occurrence of negative events on stable, internal, and global causes and expect there to be future implications from these events (Kleiman, Law, & Anestis, 2014; Meins et al., 2012).

As an example, if something bad happens, a person with a negative cognitive style might think that the event will never change and that similar events will also be bad. One's cognitive perceptions of a stressful event can be a biological risk factor for depression (Carlson, 2011). Individuals who view positive life events as being caused by global and stable forces are typically more resilient to depression and suicidal ideation (Haefel & Vargas, 2011; Kleiman, Miller, & Riskind, 2012; Kleiman, Law, & Anestis, 2014). HT theory illustrates that individuals in comparable situations may view negative events differently, placing some individuals at a higher risk for suicide. Viewing suicide through the HT lens can shed some light on risk factors of suicide. One cannot always know if a person is genetically predisposed to depression, so RAs should be trained to assume that seemingly small environmental stressors could negatively impact the mental health of their residents.

### **Theory of planned behavior**

The Theory of Planned Behavior (TPB) links people's beliefs to their behavior (Ajzen, 1985, 1987). The constructs of TPB include attitude toward behavior, subjective norm, intention, and perceived behavioral control, which are explained below (Ajzen, 1985, 1987). TPB posits that these constructs will affect an individual's behaviors and intentions. Looking through the TPB lens can help explain an individual's help-seeking behavior or intervention behavior regarding suicide.

Ajzen (1991) posits that there are three predictors of intention: attitude toward a behavior, subjective norms surrounding a behavior, and amount of perceived control one has over a behavior (Aldrich, 2015). Regarding the constructs of TPB, attitude toward the behavior is the "degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 183). Subjective norm is the "perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 183). Perceived behavioral control is a person's "perception of the ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 183). Ajzen (1991) argues that people will have strong intentions to perform a behavior if they have positive attitudes toward the behavior, there are positive subjective norms surrounding the behavior, and if people feel they are easily able to perform the behavior.

In a study of 367 undergraduate students, Aldrich (2015) examined whether the TPB could predict one's intention to intervene with a peer who is suicidal. The participants were asked to complete an online questionnaire that inquired about their attitudes, subjective norms, perceived behavioral control over suicide and suicide prevention, as well as their intentions to intervene with a suicidal peer (Aldrich, 2015). Aldrich (2015) found that the TPB constructs could predict one's intention to intervene with an individual at risk

for suicide. This finding demonstrates that TPB can provide an effective framework for understanding an individual's intentions to intervene.

The Interpersonal-Psychological Theory of Suicidal Behavior, Hopelessness Theory of Suicide, and Theory of Planned Behavior can help explain why college students may become suicidal and why they may or may not seek help. The IPTS posits that human interaction and socialization may serve as a protective factor for individuals at-risk for suicide. The Hopelessness Theory of Suicide explains that some people are vulnerable to suicide and that environmental stressors can serve as triggers. TPB helps us understand what effects individuals' intentions to intervene. Understanding these three theories can aid in the creation of effective suicide prevention programs.

### **College Students' Exposure to Suicide**

Even before entering college, some students have already had exposure to suicide. In their study, Cerel, Bolin, & Moore (2013) found that 65% (n = 76) of their participants reported knowing someone who attempted or died by suicide. The relationship between the participant and the person who attempted or died by suicide was most frequently reported as a friend (Cerel, Bolin, & Moore, 2013). Cerel, Bolin, and Moore (2013) also found that 31% of students reported having mental health treatment at some point in their lives. In his dissertation, Swanbrow (2013) obtained comparable findings. He found that RAs had considerable experience with suicide, whether in themselves (21%) or others (48-59%). Specifically, 59% of students reported knowing at least one person who attempted suicide and 48% endorsed knowing someone who died by suicide. Of those who reported knowing someone who attempted or died by suicide, most often the person was a friend or relative (Swanbrow, 2013).

A suicide completion or attempt on a college campus could profoundly affect students and other people connected to the campus (Cerel, Bolin, & Moore, 2013). A suicide survivor is defined as, “a family member or friend of a person who died by suicide” (AAS, 2014). It is estimated that one in sixty-four Americans is a suicide survivor (McIntosh, 2013). Swanbrow (2013) posits that these previous experiences with STB could impact their attitudes toward suicide and their intervention behaviors.

### **Why College Students May Become Distressed**

Even though students are becoming increasingly depressed, research shows that many college students do not seek help from their campus counseling services (D’Amico et al., 2016). One reason college students might experience depression is that the transition from high school to college can be challenging. Students usually face novel experiences and challenges when leaving home and entering university life for the first time (AAS, 2016). Experiencing the difficulties of academic demands and changing relationships can be a major source of distress (Drum et al., 2009). Drum et al. (2009) found that 43% of 910 undergraduate students reported that “academic problems” had a large effect on their suicidal ideations (Drum et al., 2009, p. 217). Coping with these challenges may negatively impact students’ mental health, physical health, self-esteem, and academic achievement (Ritts, 2016).

Schwartz (2006) asserts that students who seek help for their distress from counseling are six times less likely to die by suicide (Ilakkuvan, Snyder, & Wiggins, 2015). Of the students who used on campus or off campus counseling services, most reported being satisfied with the service they were provided (Ilakkuvan et al., 2015). Thus, it is important that college students in distress participate in counseling services.

In their study, D'Amico et al. (2016) examined the relationship between young adults' use of university counseling services and their perceived stigma of depression and mental health treatment, mental health literacy, beliefs about alternative therapies, knowledge of treatment risks and benefits, and the influence of their social network. 107 undergraduate college students participated in the study and completed a survey regarding their knowledge of depression and their views of campus counseling services. D'Amico et al. (2016) concluded that if college students believe that their friends and family stigmatize depression, they are less willing to seek mental health treatment on campus for their depression. Educating people about mental illness and suicide might reduce the stigma surrounding these topics, which could benefit those who want to seek treatment for their mental health concerns.

### **Barriers to Help-Seeking in College Students**

In a web-based study of 15,010 college students, Drum et al. (2009) found that 6% of participants "seriously considered attempting suicide" within the last year ( $n = 910$ ;  $p = .216$ ). 46% of those students did not tell anyone about their suicidal ideations; of those who did disclose their STB, two-thirds chose to tell a peer first (Drum et al., 2009). Research has examined the reasons why young adults do not seek professional help for mental health problems (Drum et al., 2009; D'Amico et al., 2016; Gulliver, Griffiths, & Christensen, 2010; Eisenberg et al., 2011; Curtis, 2010; Eisenberg, Golberstein, & Gollus, 2007; Givens & Tjia, 2002; Rickwood et al., 2005; Czyz et al., 2013). One such reason that has received attention is the stigma toward mental illness and its treatment (Bathje & Pryor, 2011; Aldrich, 2015; Czyz et al., 2013). Two federal initiatives, the Surgeon General's Report on Mental Health and the President's New Freedom Commission on Mental Health, recognizes stigma as a



major barrier to receiving effective mental health treatment (US Public Health Service, 1999; New Freedom Commission on Mental Health, 2003; Czyz et al., 2013).

Stigma surrounding mental illness and treatment has been found to negatively impact college students' attitudes toward professional help, their willingness to seek it, and their perception of whether they need the service (Eisenberg et al., 2009; Givens & Tija, 2002; Vogel, Wade, & Hackler, 2007; Czyz et al., 2013). Some research suggests that one domain of stigma, the perception of others' attitudes, does not impact college students' use of mental health services (Eisenberg et al., 2009; Golberstein, Eisenberg, & Gollust, 2008; Golberstein, Eisenberg, & Gollust, 2009). Stigma is shown to be a major deterrent for seeking help, but it cannot fully account for college students' underutilization of mental health services by college students (Czyz et al., 2013). This ties into the Theory of Planned Behavior, which posits that attitude toward a behavior, subjective norms, and behavioral control together can predict a person's intention to perform a behavior (Ajzen, 1991; Aldrich, 2015).

Research has shown that stigma is not the only barrier to help-seeking. Two of the most common reasons that college students with depression do not seek mental health services are the attitude that stress is normal in college and the perception that they do not need help (Czyz et al., 2013). Help-seeking by those with mental health problems or substance abuse problems is greater among individuals who perceive the need for help than for those who do not (Calderia et al., 2009; Eisenberg et al., 2011; Czyz et al., 2013). In Czyz et al.'s web-based study (2013), 66% of 157 college students from a large, Midwestern university reported that they do not seek professional help because they believe their mental health problems are minor and transient. The sample of 157 students was drawn

from a larger sample of 19,608 students who were invited to participate in the study (Czyz et al., 2013). This finding was consistent with other research, which found that a common barrier to mental health treatment by college students is the lack of perceived need; this was true even with students who reported having suicidal thoughts in the past year (Eisenberg, Golberstein, & Gollust, 2007; Downs & Eisenberg, 2012; Czyz et al., 2013). Research shows that as students' STB increase, they may be more likely to conceal their thoughts and intentions from those who are not peers (Stewart, 2008; Drum et al. 2009; Rallis, 2017). The reluctance of college students in distress to approach non-peer adults, such as mental health professionals, for help is consistent with developmental theory (Rallis, 2017). As adolescents move toward autonomy and into adulthood, they are more likely to seek support from peers instead of adults (Muuss, 1995; Gould, Greenberg, Velting, & Shaffer, 2003; Kalafat & Elias, 1995; Kalafat & Elias, 1994; Lewis & Lewis, 1996; Wyman et al., 2008; Rallis, 2017). College students may not perceive themselves as adults and thus, may be more reluctant to seek help from adults. A survey of 346 college students was conducted to examine their perceptions of adulthood and their transition into it (Arnett, 1994). Arnett (1994) found that only 23% of students felt they had reached adulthood. This demonstrates that even though college students are technically adults, emotionally, they may feel and act more like adolescents. Since college students are more likely to disclose their STB to peers than to adults, educating students on suicide prevention and how to support peers in need is crucial for decreasing STB in the college student population.

Another common barrier to seeking mental health services is not being able to identify symptoms of mental illness (Gulliver, Griffiths, & Christensen, 2010; Czyz,

2013). Many researchers have found that the preference for self-resilience is a top barrier to seeking professional help, especially among college students (Gulliver, Griffiths, & Christensen, 2010; Eisenberg et al., 2011; Curtis, 2010; Czyz, 2013). Eisenberg et al. (2011) found that in a sample of 14,175, about 55% of students who reported having mental health problems (n = 4,300) identified the preference for solving one's own problems as a reason for not seeking professional help (Czyz et al., 2013). Czyz et al. (2013) found that 26.8% of participants reported that lack of time was one reason why they do not seek mental health treatment. Of the 14,175 participants, 1,176 reported having Major Depressive Disorder, 862 reported having suicidal ideations, and 1,984 reported participating in non-suicidal self-injury (Eisenberg et al., 2011).

Other barriers to seeking mental health services include confidentiality concerns, treatment expenses, lack of time, unsure of the benefit of treatment, previous negative experiences with treatment, and the preference for relying on other supports, like family and friends (Eisenberg, Golberstein, & Gollus, 2007; Givens & Tjia, 2002; Gulliver, Griffiths, & Christensen, 2010; Eisenberg et al., 2011; Curtis, 2010; Rickwood et al., 2005, Czyz et al., 2013). If college students do not believe they need mental health services for their mental health problems or they do not know how to identify their own symptoms of mental illness, then it is important for RAs to be able to identify the symptoms and refer the residents for help.

### **Suicide Prevention Gatekeeper Training**

A specific curriculum or standards for RA training have not been developed (Reingle, et. al., 2010). Due to the increasing rates of suicide in the young adult population, the implementation of evidence-based suicide prevention trainings on college campuses is

critical. One approach that can be used is gatekeeper training (Cross, Matthieu, Lezine, and Knox, 2010). Gatekeeper trainings vary in content and duration, but they have a similar goal. The goal is to increase participants' knowledge, attitudes, and skills regarding suicide prevention so that they can refer at-risk individuals for help (Cross et al., 2010). Multiple studies have shown changes in participants' knowledge and attitudes after the completion of gatekeeper training (Cross, Matthieu, Cerel, & Knox, 2007; Goldsmith et al., 2002; Grossman & Kruesi, 2000; Keller et al. 2009; Lezine et al., 2009; Matthieu, Cross, Batres, Flora, & Knox, 2008; Wyman et al., 2008; Cross et al., 2010). Gatekeeper training has become a popular approach to suicide prevention on campuses (Goldston et al., 2010; Rallis, 2017). On college campuses, gatekeeper trainings are used to train gatekeepers, or individuals who are in close proximity to students on a regular basis (Rallis, 2017).

One well-known gatekeeper training used by colleges is Question, Persuade, Refer (QPR), which was created by Paul Quinnett in 1995. QPR is often used with resident advisors on college campuses, and the training teaches participants how to identify warning signs, examine suicidal intentions, listen to student issues, and refer distressed students for help (Quinnett, 1995; Tompkins & Witt, 2009). Cascamo (2013) examined the effect of a one-hour QPR training on participants' attitudes toward mental health services. Results showed that there was an increase in participants' attitudes toward help-seeking.

QPR is a one to two-hour suicide prevention program that includes a lecture, introduction video, distribution of materials (i.e. overview booklets and referral cards), and a discussion period to address questions participants might have (Quinnett, 1995). The training content includes facts about suicide, misconceptions about suicide and suicide

prevention, warning signs of suicide, and gatekeeper skills (Cross et al., 2010). The video shows interviews with people who had personal experiences with suicide, such as a loss of a loved one due to suicide (Cross et al., 2010). The overview booklet participants are given includes factual information about suicide related issues and gatekeeper skills that were discussed in the presentation. The referral cards are about the size of a credit card and were created to fit easily into wallets. The purpose of the referral cards is to help participants recall the suicide-specific gatekeeper skills they learned during the training (Cross et al., 2010).

Other common gatekeeper training programs include Applied Suicide Intervention Skills (ASIST), SafeTALK, and Campus Connect (Rodgers, 2010; Rallis, 2017). ASIST is a fourteen-hour training, SafeTALK is a three to eight-hour training, and Campus Connect is a three-hour training (Rodgers, 2010; Rallis, 2017). These trainings all have the same ultimate goal, to reduce the number of deaths by suicide, but they take different approaches to reaching that goal (Rallis, 2017). The content of SafeTALK, Campus Connect, and QPR emphasizes the identification of individuals in crisis, intervention, and referral to professional help (Rallis, 2017). Trainers teach the material using a didactic approach, such as lectures, a behavioral modeling approach, such as role playing, or both (Rallis, 2017). SafeTALK and QPR place more emphasis on didactic training, whereas Campus Connect places more emphasis on behavioral modeling (Rallis, 2017).

Gatekeeper trainings can take place in various settings, such as in secondary schools, hospitals, the community, and in colleges (Cross et al., 2010). Various populations can be trained as gatekeepers, such as teachers, nurses, police officers, and resident advisors (Cross et al., 2010). Cross, Matthieu, Lezine, and Knox (2010) assessed the impact

of QPR on community members' suicide-specific gatekeeper skills. The researchers recruited fifty participants from US colleges and examined their skills before and after completion of a training (Cross et al., 2010). Participants included individuals employed by universities, such as faculty, facility workers, coaches, resident advisors, and student affair staff (Cross et al., 2010). Prior to and following a brief training, the participants were videotaped role playing with a standardized actor. The researchers measured participants' active listening skills, such as asking clarifying questions regarding thoughts and feelings, asking directly about suicide, using convincing phrases, and demonstrating knowledge of the referral process (Cross et al., 2010). Cross et al. (2010) found that 10% of the participants had acceptable gatekeeper skills prior to QPR training and 54% had acceptable skills after training. Cross et al. (2010) noted that adding behavior modeling to the training might increase the skills of the remaining 46% of participants who did not meet the requirement for acceptable skills post-training.

### **Peers as Gatekeepers**

In another study, Rallis (2017) sought to determine the efficacy of a suicide gatekeeper training program, Mason Cares, and explore factors that predict effective peer gatekeeping behavior. 231 college students from a largely commuter university of over 20,000 undergraduate students participated in the study (Rallis, 2017). Participants were recruited from an online university system that posts studies students can participate in (Rallis, 2017). Rallis (2017) found that with the completion of a one-hour Mason Cares training program, there was an increase in both participants' knowledge of suicide prevention strategies and self-reported referrals of suicidal students over a three-month period.

Cascamo (2013) examined the relationship between completion of a gatekeeper suicide prevention training and attitudes toward seeking mental health services. Participants were students from a community college in Oregon (Cascamo, 2013). Prior to watching a one-hour presentation of Question Persuade and Refer, participants were asked to complete the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS) questionnaire as a measure of their attitude towards seeking mental health services. The participants were asked to complete the IASMHS again three weeks post-training. Cascamo found that participants' IASMHS scores were significantly higher post-training. These studies show that providing gatekeeper training for the general college student population has its advantages.

Gatekeeper suicide prevention trainings are used to increase participants' knowledge of issues relating to suicide and teach participants how to effectively intervene with someone who is exhibiting suicidal behaviors (Cascamo, 2013). Gatekeeper trainings on college campuses, with peers serving as the gatekeepers, are often useful for identifying students in distress and referring them for professional help. Targeting college students to serve as gatekeepers is important because students are typically more likely to seek help from friends and family than from mental health professionals (Barksdale & Molock, 2008; Fortune, Sinclair, & Hawton, 2008; Aldrich, 2015; Cross, 2007; Drum et al., 2009; Wyman et al., 2008; Rallis, 2017).

Involving peers to help aid suicide prevention efforts has its benefits and limitations. College students might prove effective in intervening with at-risk peers. Young adults have a powerful influence on one another; therefore, having peers involved in prevention efforts can be helpful (Ilakkuvan et al., 2015). Peers can shape campus norms

and strengthen support networks on campuses if given the right training (Ilakkuvan et al., 2015).

A limitation of peer prevention programs is the questionable competency of peers to deliver sensitive information (Milburn, 1995; Ilakkuvan et al., 2015). Another limitation is the inclusion of peers in the program who are high-risk, meaning individuals who are already at risk for suicide. Such individuals could convey messages contradictory to the aims of the prevention program (Philliber, 1999; Ilakkuvan et al., 2015). If peers are adequately trained to assist in suicide prevention efforts, then the aforementioned limitations could be negligible. Cerel, Bolin, and Moore (2013) concluded that many college students are likely to be exposed to suicidal behavior, so supports for affected individuals are needed on college campuses. As more students are being affected by STB, gatekeeper training can be useful for teaching students how to refer potentially suicidal peers for help.

### **Resident Advisors as Gatekeepers**

In her study, Bender (2013) examined RAs' comfort in working with students at-risk for suicide, ability to identify at-risk students, and actions taken when working with students at-risk. In order for RAs to be effective at their jobs, they need to be trained on knowledge, attitudes, and skills regarding suicide prevention (Reynolds, 2009; Taub & Servaty-Seib, 2011). Bender (2013) found that the participants who completed suicide prevention training and were able to identify suicide warning signs were less hesitant to work with suicidal students than the participants who did not complete the training.

In Ritts' study (2016), she analyzed the intervention behaviors of eighty-one RAs after they took part in a one-hour suicide prevention training. Ritts (2016) found no



significant relationships between RAs' knowledge, perceived competency, and intervention behaviors the semester after the completion of the training.

Tompkins and Witt (2009) studied the short-term effects of QPR on 240 college students from urban and rural colleges in the Pacific Northwest. The researchers found that the participants who were trained in QPR demonstrated a short-term increase in "appraisals of preparation, efficacy, and intentions to perform in a gatekeeper role," but there was no significant increase in RA's gatekeeper behaviors (Tompkins & Witt, 2009). In the study, gatekeeper intervention behaviors included asking students about their suicidal thoughts, convincing students to seek professional help, and taking them to campus counseling (Tompkins & Witt, 2009).

In Tompkins and Witt's study (2009), 65% of the participants reported believing that suicide among students their age is an issue and 81% reported believing suicide is preventable (Tompkins & Witt, 2009). 55% of participants reported that they had sufficient training and 69% reported feeling comfortable talking about suicidal issues with their residents (Tompkins and Witt, 2009). The results of Ritts' study (2016) and Tompkins and Witt's study (2009) demonstrate the need for researchers to determine what constructs need to be included in suicide prevention training curricula to increase RAs' intervention behaviors.

### **Behavioral Modeling**

A useful part of some gatekeeper trainings is the inclusion of behavioral modeling, or experiential activities. Experiential activities are useful because they allow participants the opportunity to use the knowledge and skills that they learned during the didactic portion of the training in real world situations (Wallack, 2007; Taub & Servaty-Seib,

2011). Not all trainings include behavioral modeling strategies. One method of behavioral modeling is role playing and acting out what to do in suicide-related scenarios. This type of activity allows participants to observe behaviors in pseudo-real world settings, which can help participants internalize the skills they learned and transfer them to real life (Taub & Servaty-Seib, 2011). Another experiential activity that can be included in gatekeeper training is observing actors performing gatekeeper skills, such as referring a suicidal student to mental health services. Instead of a live demonstration, a videotape of someone using suicide-specific gatekeeper skills can be used in trainings as another form of experiential training (Taub & Servaty-Seib, 2011). It is best for participants to watch a demonstration of an expert using the skills to avoid any misinformation and ambiguity as to how to appropriately use the skills (Taub & Servaty-Seib, 2011). Another way to avoid confusion as to how to use the skills effectively is to have seasoned staff members provide the participants with feedback during role playing opportunities (Taub & Servaty-Seib, 2011). Practicing gatekeeper skills can increase RAs' perceived competency to make referrals, so including experiential activities in trainings could prove beneficial (Taub & Servaty-Seib, 2011).

One commonly used experiential training that universities utilize in their suicide prevention trainings for RAs is "Behind Closed Doors" (BCD), which is a role-playing exercise (Catalano, 2016). The purpose of BCD is to allow participants to test themselves in challenging situations and to ask questions about the university's suicide prevention policy, approaches, and procedures while in a safe environment (Catalano, 2016). Trainers can create scenarios that are relevant to their university, or they can choose to use scenarios that other colleges use (Catalano, 2016).

In their study, Pasco, Wallack, Sartin, and Dayton (2012) hypothesized that the inclusion of experiential activities in a gatekeeper training would lead to an increase in participants' skills more so than if a training only used a didactic approach. Pasco et al. (2012) examined participants' self-efficacy for suicide related knowledge and skills. Participants were sixty-five first year RAs at Syracuse University, and Pasco et al. (2012) split them into two treatment groups. In the first treatment group, the RAs participated in a three-hour Campus Connect gatekeeper training that consisted of didactic and role playing portions (Pasco et al., 2012). In the second treatment group, the RAs participated in a one and a half hour adapted version of Campus Connect where participants only received didactic training (Pasco et al., 2012).

The didactic training portion used in each group focused on teaching information regarding knowledge and awareness of suicide, referrals, and what questions to ask their residents about suicide (Pasco et al., 2012). In the behavioral modeling section, participants practiced active listening skills and how to ask students about suicide (Pasco et al., 2012). Pasco et al. (2012) found that didactic training alone did not result in an increase in perceived competency with skills related to communication and connection with residents in distress. Participation in both didactic and experiential trainings did increase one's perceived competency (Pasco et al., 2012). Students who participated in treatment group one reported significantly increased self-competency, or self-efficacy, on communication skills, connection with residents, knowing how to ask residents about suicide, comfort in asking about suicide, and the ability to assist residents in accessing mental health resources (Pasco et al., 2012). The results of this study demonstrate the benefits of including a behavioral modeling approach in suicide prevention trainings.

## **Suicide-Related Knowledge**

Gatekeeper training has been shown to increase participants' knowledge of suicide related issues. A major aim of suicide prevention gatekeeper training is to increase knowledge of suicide. Studies have shown that gatekeeper training increases participants' declarative and perceived knowledge, such as suicide myths, warning signs, and intervention behaviors (Cross et al., 2010; Cimini et al., 2014; Tompkins & Witt, 2009; Rallis, 2017). Declarative knowledge, or actual knowledge, refers to what people know and perceived knowledge refers to what people think they know. Cross et al. (2010) found that there was a significant increase in RAs' declarative and perceived knowledge after participation in a one-hour gatekeeper training (Rallis, 2017). Cimini et al. (2014) found an increase in RAs' declarative knowledge and comfort in talking about suicide after a one and a half-hour training (Rallis, 2017). Tompkins and Witt (2009) found an increase in RAs' declarative and perceived knowledge of intervention behaviors after participation in a one-hour training (Rallis, 2017).

The cognitive theory of decay posits that over time, information stored in memory fades and can be more difficult to recall (Berman, Jonides, & Lewis, 2009). This theory gives support to studies that have found decreases in RAs' declarative knowledge three to five months following suicide prevention trainings (Cimini et al., 2014; Tompkins & Witt, 2009; Rallis, 2017). If RAs' suicide-related knowledge fades over time, then suicide prevention booster sessions would help RAs retain the information they learned in their trainings (Rallis, 2017).

In a poll of 819 college students, VanDeusen, Lewis Ginebaugh, and Walcott (2015) asked participants about their experiences with suicide and exposure to suicide prevention

material. The researchers used the Suicide Prevention Exposure, Awareness, and Knowledge Survey (SPEAKS) questionnaire to examine participants' perceived knowledge of suicide prevention, suicide facts, and their stigma regarding mental health treatment. VanDeusen et al. (2015) found that 29.4%, 25%, and about 50% of participants perceived themselves as having "above average" to a "great deal" of knowledge about facts of suicide, how to ask others about suicide, and risk factors of suicide, respectively (VanDeusen et al., 2015). Also, 24% and roughly 33% of participants reported having "above average" to a "great deal" of knowledge about mental health resources and how to help others in distress get professional help, respectively (VanDeusen et al., 2015). VanDeusen et al. (2015) found that 30% of participants felt they had "above average" to a "great deal" of self-efficacy in their ability convince others to seek help for mental health concerns. This study shows the need for a suicide prevention training that is able to substantially increase participants' knowledge of suicide.

### **Attitudes toward Suicide**

Gatekeeper training has been shown to change participants' attitudes toward suicide, and addressing participants' attitudes toward suicide is important since attitude can influence behavior (Botega et al., 2007; Taub & Servaty-Seib, 2011). For example, if a person has a negative attitude about mental health counseling, that person might be less likely to refer someone to counseling (Taub & Servaty-Seib, 2011). Training needs to address attitudes in order to increase intervention behavior.

Attitudes toward suicide can vary among people of different demographics, such as gender, international status, and race. Although their needs may be just as significant, males are less likely than females to seek professional help for mental health concerns

(Oliver, Pearson, Coe, & Gunnell, 2005; Cerel, Bolin, & Moore, 2013). Compared to domestic students, research has shown that international students report higher levels of mental health concerns, but are less likely to seek mental health services (Suicide Prevention Resource Center, 2004; Cerel, Bolin, & Moore, 2013). Sharkin (2006) suggested that if people have negative attitudes towards mental health treatment and they refer someone to counseling, their own negative biases could be unconsciously communicated (Taub & Servaty-Seib, 2011). This unconscious communication of biases could deter the person in need from seeking help (Sharkin, 2006; Taub & Servaty-Seib, 2011). Rallis (2017) argues that one's level of comfort in discussing mental health issues and help-seeking can impact their use of the suicide-specific gatekeeper skills they learned during training. It is important to understand gatekeepers' attitudes toward suicide and help-seeking so that suicide prevention trainings can be tailored to address those concerns.

Cerel, Bolin, and Moore (2013) found that women were more likely than males to see suicide as a problem for college-age individuals. They also found that Caucasian students were more likely than non-Caucasian students to see suicide as a problem for college-age individuals (Cerel, Bolin, & Moore, 2013). Comparing international students to domestic students, Cerel, Bolin, and Moore (2013) found that domestic students were significantly more likely to see suicide as a problem among college-age individuals. These findings demonstrate that demographic characteristics, such as gender, race, and international status, can impact individuals' attitudes toward suicide.

In regards to attitudes toward mental health treatment, in a poll of 819 college students, VanDeusen et al. (2015) found that 66% of participants reported that there is a social stigma attached to receiving treatment for STB. 46% of participants reported that

they would view a person less favorably if he or she sought help for STB (VanDeusen et al., 2015). 19% of participants reported that it is advisable to conceal from others that they sought help for STB (VanDeusen et al., 2015). 12% of participants reported that seeking mental health treatment for STB is a sign of personal weakness (VanDeusen et al., 2015). 26% of participants reported that those who seek help for STB are usually less liked than their peers who do not seek mental health treatment (VanDeusen et al., 2015). These findings highlight the stigma and negative attitudes surrounding suicide and mental health treatment.

In a study of 117 college students, Cerel, Bolin, and Moore (2013) found that 85%, 80%, 93.3%, and 75.8% of participants “agreed” or “strongly agreed” that suicide is preventable, most people who die by suicide show warning signs of suicide, everyone should play a role in preventing suicide, and suicide is a problem among college-aged individuals, respectively (Cerel, Bolin, & Moore, 2013). Interestingly, when the participants were asked if suicide was a problem on their campus, 25% reported that they “agreed” or “strongly agreed” that suicide is a problem (Cerel, Bolin, & Moore, 2013). Tompkins and Witt (2009) had comparable results. They found that 65% of college students “agreed” or “strongly agreed” that suicide is a substantial issue in their age-group, 88% felt that their college should be involved in suicide prevention activities, and 81% felt that, in most cases, suicide is preventable (Tompkins & Witt, 2009). Cerel et al. (2013) explain that even if students have positive attitudes toward help-seeking and mental health treatment for STB, they need training to increase their perceived competency and intention to intervene with suicidal individuals. The aforementioned studies show that even though individuals might

have negative attitudes toward seeking help for mental health concerns, they can still believe that suicide is an issue and can be prevented.

### **Perceived Competency**

Gatekeeper training has been shown to increase one's perceived competency, or self-efficacy, in intervening with potentially suicidal individuals (Tompkins & Witt, 2009; Isaac et al., 2009; Ritts, 2016). Perceived competency is an individual's perception of how skilled and effective they are in a given situation. Understanding RAs' perceived competency in dealing with potentially suicidal residents is important to determine what kind of suicide prevention strategies or trainings are needed to increase their intervention behaviors. Research shows that practice will increase RAs' perceived competency to make effective referrals (Taub & Servaty-Seib, 2011). A way for RAs to practice these suicide-specific skills and increase their self-efficacy is through behavioral modeling. Pasco et al. (2012) found that experiential trainings can increase one's perceived competency. In order for RAs to intervene with potentially suicidal students, RAs need to perceive themselves as competent to do so (Parries, 2014).

In a study of 240 RAs, Tompkins and Witts (2009) found that 55% of participants felt that they had sufficient suicide prevention training and 60% reported that they felt comfortable discussing the topic of suicide with their students (Tompkins & Witt, 2009). When the participants were asked to respond to a hypothetical scenario in which a student was showing warning signs of suicide, 36% of participants reported themselves as "a little likely" to bring up the topic of suicide with the student (Tompkins & Witt, 2009); however, 68% of the participants would encourage the student to seek help (Tompkins & Witt, 2009). RAs can suggest someone seek professional help without having to broach the



topic of suicide. RAs might not feel comfortable addressing suicide with a potentially suicidal student, and they might feel more comfortable telling a student in distress to see a professional for help.

In a study about college students' perceived competency in identifying students in distress, King, Vidourek, and Strader (2008) found that only 11% out of 1,019 college students strongly believed that they could recognize if their friends were at risk for suicide. Seventeen percent of the participants strongly believed that they could ask a friend about their possible suicidal thoughts and behaviors (King, Vidourek, & Strader, 2008; VanDeusen et al., 2015). Knowing how to confront a peer about their STB is critical because students may not voluntarily disclose their feelings unless asked directly (VanDeusen et al., 2015).

### **Perceived Role Responsibility**

Resident advisors' opinions on what their roles and responsibilities are can impact their intervention behaviors, or how they intervene with potentially suicidal students. RA trainings should increase participants' perceived role responsibility for identifying and referring students at risk for suicide (Schwartz & Friedman, 2009; Swanbrow, 2013). Perceived role responsibility can be explained as what individuals believe their responsibilities are depending on role they are assigned. For example, a resident advisor may not believe that helping solve the mental health problems of students is the responsibility of resident advisors.

Suicide prevention trainings for resident advisors can increase the frequency that they come into contact with suicidal students. This can heighten the RAs' responsibility to intervene with the potentially suicidal residents (Lewis & Lewis, 1996; Swanbrow, 2013).

RAs' intervention behaviors, or use of the skills they learned during training, may be influenced by what RAs believe their roles are (Swanbrow, 2013). In his dissertation, Swanbrow (2013) asked RAs about their perceived role responsibility regarding working with potentially suicidal residents. Swanbrow (2013) examined the extent to which RAs felt responsible for several roles, including solving students' mental health problems and talking to students' about their suicidal thoughts (Swanbrow, 2013). Many of the participants "agreed" or "strongly agreed" that they are responsible for helping their residents, but many did not believe that they are responsible for solving the problems (Swanbrow, 2013). In Tompkins and Witt's study of 240 resident advisors, 75% of participants reported that RAs should be responsible for talking about suicide with their residents. Perceived role responsibility was chosen as an outcome measure in this study so that more information can be gathered on the relationship between RAs' perceived role responsibility and their intervention behavior.

### **The Role of Resident Advisors**

Resident advisors are individuals on college campuses who have been hired to supervise, assist, and advise students living in their assigned residence halls (Bender, 2013). Across the University of North Carolina system, an RA is a full-time student who "serves as an educator, counselor, administrator, role model, friend, and team member for the residents of a floor or wing in a residence hall" (Carolina Housing, 2017). Under the direction of a Community Director, RAs are tasked with creating and maintaining an environment that fosters academic and personal growth in their students (Carolina Housing, 2017). RAs fill roles of both student and official representative of a university.

RAs typically live in the same residence halls as students and interact with them on a regular basis, so the RAs are usually in a good position to identify students in distress and refer them to professional help (Boswinkel, 1986; McLeon et al., 1985; Sharkin, Plageman, & Mangold, 2003; Taub & Servaty-Seib, 2011; Bender, 2013). An important role of RAs is identifying students experiencing mental health issues and helping them access available services (Boswinkel, 1986; Sharkin, Plageman, & Mangold, 2003; Taub & Servaty-Seib, 2011).

Letarte (2013) states that RAs are typically involved with high-stakes situations and may encounter issues with alcohol, drugs, suicide, and sexual assault in their residence halls. With the increase of mental health issues and alcohol use on campus, the role of RAs can be akin to the role of a first responder (Letarte, 2013). How RAs initially respond to residents who are in crisis can influence those students' help-seeking behaviors (Parries, 2014). Effective RAs must build relationships with their residents because research shows that individuals are more willing to listen to and accept advice from people they feel close to (MacGeorge et al., 2008; Taub & Servaty-Seib, 2011). Typically, in order for an individual to willingly disclose their STB, the individual needs to trust and feel close to the person they are sharing this information with (Taub & Servaty-Seib, 2011). If RAs build relationships with their residents, then RAs are in a good position to learn about students' STB and refer them to professional help.

### **Summary of Relevant Literature**

There is a growing body of research on suicide prevention trainings on college campuses. One approach to suicide prevention is the use of gatekeeper training with resident advisors. The goal of gatekeeper training is to increase participants' suicide-

specific knowledge, attitudes, and skills in order for them to identify and refer potentially suicidal students for professional help (Cross et al., 2010). RAs are on the front lines of high-stakes situations, such as working with students in crisis. Targeting peers to serve as gatekeepers can be useful because college students are typically hesitant to approach adults about their STB and instead choose to disclose their distress to friends (Cross, 2007; Drum et al., 2009; Wyman et al., 2008; 2010; Rallis, 2017). Unfortunately, not all students exhibiting STB tell someone, so RAs should be trained on how to identify students in distress.

Most universities train their RAs, but the content and duration of the trainings differ since there is no set curriculum (Cross et al., 2010; Reingle, et. al., 2010, p. 327). Research has shown that gatekeeper training can increase RAs' knowledge and attitudes about suicide, which can lead to an increase of intervention behaviors (Cross et al., 2010). No information has been gathered on if there is a change in RAs' suicide specific knowledge, attitudes, perceived competency, perceived role responsibility, and intervention behavior after the completion of their summer training at UNC-CH.

## **Chapter III: Methodology**

### **Purpose of the Study**

This study utilized a quantitative design to explore the role of resident advisors as suicide prevention gatekeepers on the University of North Carolina at Chapel Hill campus. The study assessed RAs' suicide-related knowledge, attitudes toward suicide and mental health treatment, perceived role responsibility in terms of suicide prevention, perceived competency to handle situations concerning suicide, and suicide-specific intervention behaviors.

### **Research Questions**

**Research question 1:** What is the relationship between participants' demographic characteristics and their suicide-related knowledge, attitudes toward suicide, perceived competency, and intervention behavior on the pre-training questionnaire?

**Hypotheses:** 1a) It was hypothesized that first-year RAs would score significantly lower on the knowledge, perceived competency, and intervention behavior scales on the pre-training questionnaire than returning RAs. 1b) It was hypothesized that female RAs would score significantly higher on the attitudes toward suicide scale on the pre-training questionnaire than male RAs.

**Rationale:** Resident advisors are usually sophomore, junior, or senior undergraduate students. Many RAs decide to fill the role for more than one year. Those who have served more than one year most likely will have had more practice intervening with suicidal residents than first-year RAs. Research shows that practice can increase

perceived competency, so returning RAs might believe themselves to be more competent in handling potentially suicidal residents (Taub & Servaty-Seib, 2011). At UNC-CH, all RAs are required to participate in training each August. RAs who have served for more than one year will have been trained multiple times. This might lead returning RAs to have more knowledge of suicide-related issues than first-year RAs, regardless of first-years' RAs intervention behavior.

Addressing RAs' attitudes toward suicide and mental health treatment is important for suicide prevention since attitudes can influence behavior (Botega et al., 2007; Taub & Servaty-Seib, 2011). Some research has shown that, on average, males tend to have a more negative attitude toward suicide and mental health treatment than women, although there is no conclusive evidence of this (Cascamo, 2013). If this study finds that males have significantly more negative attitudes toward suicide, then it would support the need for RA training that is gender relevant for male RAs.

**Research question 2:** Is there a significant difference in participants' suicide-related knowledge, attitudes toward suicide, perceived competency, and intervention behavior between the pre-training questionnaire, post-training questionnaire, and post-study questionnaires?

**Hypotheses:** 2a) It was hypothesized that there would be a significant increase in participants' attitudes, perceived competency, and intervention behavior from the pre-training questionnaire to the post-training and post-study questionnaires. 2b) It was hypothesized that there would be a significant increase in suicide-related knowledge from the pre-training questionnaire to the post-training questionnaire, but there would be a

significant decrease in suicide-related knowledge from the post-training questionnaire to the post-study questionnaire.

**Rationale:** Many gatekeeper trainings for RAs have been found to increase participants' knowledge, attitudes, intentions to help, and crisis communication skills (Taub et al., 2013; Ritts, 2016). There is no set training curriculum that universities utilize and many universities create their own, and it is not known whether UNC's training is effective at increasing participants' knowledge, attitudes, and skills. The study examined the effectiveness of UNC's RA training on increasing those necessary gatekeeper skills.

Some studies have demonstrated that increased suicide-related knowledge is a proximal post-training outcome, but not many have studied the long-term outcomes of training on knowledge (Ritts, 2016). In this study, increased knowledge as a proximal outcome of the training was addressed by the administration of a post-training survey. Increased knowledge as a distal, or long-term, outcome was addressed by the administration of a post-study survey. If participants' scores on the knowledge scale increase post-training or post-study, it will show that the training might impact RAs' suicide-related knowledge. Even though participants' knowledge might increase following training, they might have difficulty retaining the material they learned over a three-month period. The study sought to determine if there was a decrease in participants' knowledge scores over time.

The cognitive theory of decay purports that as time passes, information stored in memory fades and is more difficult to retrieve (Berman, Jonides, & Lewis, 2009). This theory provides support for the hypothesis that participants' scores on the knowledge scale will decrease from the post-training to post-study questionnaire. If there is a decrease, it

could provide evidence for including a suicide prevention refresher course for RAs during the semester. Some research shows that didactic training can improve knowledge and attitudes over time, but that practicing gatekeeper skills does not always impact knowledge or attitude outcomes (Keller et al., 2009; Tompkins et al., 2009; Wyman et al., 2008; Cross et al., 2011; Rallis, 2017). This suggests that if RAs have practice intervening with suicidal residents during the semester, it will not necessarily affect their suicide-related knowledge. If the study finds that participants' knowledge decreased over the course of the semester, a didactic booster session could prove useful to increase or maintain RAs' suicide-related knowledge.

Research has shown that participation in suicide prevention training can increase one's attitudes toward suicide. Therefore, there should be an increase in participants' attitudes toward suicide scores from the pre-training questionnaire to the post-study questionnaire. UNC's RA training includes a behavioral modeling portion in which participants practice their gatekeeper skills through roleplaying. Research has shown that practice can lead to an increase in perceived competency (Swanbrow, 2013). Thus, there should be an increase in participants' perceived competency scores from the pre-training questionnaire to the post-study questionnaire. A typical role of RAs is identifying students experiencing mental health issues and helping them access services (Boswinkel, 1986; Sharkin, Plageman, & Mangold, 2003; Taub & Servaty-Seib, 2011). Due to the nature of their job, over the course of a semester, RAs might intervene with potentially suicidal residents. Thus, we hypothesize that there will be an increase in participants' intervention behavior from the pre-training questionnaire to the post-training and post-study questionnaires, respectively. See Appendix G for a summary table of the hypotheses.



**Research question 3:** To what extent will suicide-related knowledge, attitudes toward suicide, perceived role responsibility, and perceived competency predict intervention behavior on the post-study questionnaire?

**Hypothesis:** It was hypothesized that suicide-related knowledge, attitudes toward suicide, perceived role responsibility, and perceived competency would, together, explain the variability of intervention behavior on the post-study questionnaire.

**Rationale:** The study examined if participants' suicide-related knowledge, attitudes toward suicide, perceived role responsibility, and perceived competency influenced their intervention behavior. RAs' knowledge of suicide can affect their intervention behavior because RAs must be able to recognize the warning signs of suicide and know how to refer the resident for help. Research shows that attitudes can influence behavior (Botega et al., 2007; Taub & Servaty-Seib, 2011). An RA's negative attitude toward mental illness or mental health treatment could affect his or her ability to refer a potentially suicidal resident for help (Taub & Servaty-Seib, 2011).

RAs' perceptions of how they view their roles in relation to suicide prevention can impact their intervention behaviors (Swanbrow, 2013). If they do not feel like it is their responsibility to help residents in distress, RAs will be less likely to do so. RAs' perception of how competent they are with helping potentially suicidal residents can also impact their intervention behavior. If the RAs do not feel comfortable or if they do not know how to confront a peer about their suicidal thoughts and behaviors, they are less likely to intervene. Rallis (2017) argues that participants' level of comfort in discussing mental health issues and help-seeking can impact their use of the suicide-specific gatekeeper skills that they learned during training. Knowing how to address a peer about their suicidal

thoughts is important because students may not voluntarily disclose their feelings unless asked (VanDeusen et al., 2015).

## **Participants**

Participants of this study were resident advisors at the University of North Carolina at Chapel Hill. This is a purposeful sample targeting all RAs who participated in training in August 2017. The location of the study, UNC-CH, was chosen because of the investigator's proximity to the target population. Inclusion criteria for participation in the study included: 1) participants must be resident advisors and 2) participants must be undergraduate students. Exclusion criteria will include: 1) graduate students, 2) individuals under eighteen years of age, and 3) resident advisors who did not participate in the RA training in August 2017. Data collection took place from July 2017 to November 2017.

## **Procedure**

UNC-CH RAs were recruited to complete three questionnaires in Qualtrics, an online survey tool (see Appendix A). The DHRE provided the investigator information regarding the RA training so that she could tailor the questionnaires to match the training. A DHRE coordinator distributed an email created by the investigator through a mass email system two weeks prior to the RA training in August, three days following training completion in August, and in mid-November. See Appendix E for the email distribution timeline. One reminder email for each questionnaire was sent in order to increase survey participation rates (see Appendix F). Prior to beginning the pre-training, post-training, and post-study surveys, the RAs were asked to sign an informed consent form. See the ethical

considerations section of this manuscript for further explanation of the informed consent process.

## **Measures**

### **Resident Advisor Training at UNC-CH**

At UNC-CH, there are usually over 8,500 students living among sixteen residential communities (Carolina Housing, 2017). In the 2017-2018 school year, there were 242 undergraduate students employed as resident advisors. Kate Dicato (2017), the Carolina Housing Conduct Coordinator at UNC-CH, reported that all of the RAs undergo a comprehensive week-long training before each fall semester begins. The training objectives that the Department of Housing and Residential Education (DHRE) identifies are “informing student staff of crisis and safety protocol, reviewing the Community Living Standards, equipping student staff with skills needed for hall programming, and teaching student staff how to exemplify Community Immersion. Each training session aims to impart the necessary knowledge, skills, and awareness that student staff members need to fulfill the duties of their respective positions” (Assessment Highlights, 2015).

Amy Gauthier, the Senior Associate Director of the Department of Housing and Residential Education, said that “When it comes to developing student staff training, we focus on the foundational core of the RA position based in large part to the job description as well as departmental need and the use of assessment. Our student staff training is rooted within our position competencies, as well” (2017). The RA position competencies include critical thinking, communication, interpersonal development, cross cultural perspectives, and ethics and integrity.

Parries (2014) argues that while resident life staff are usually responsible for training their RAs, it would be beneficial to collaborate with campus mental health services to conduct training in conduct management. UNC's Campus and Psychological Services (CAPS) collaborates with the Department of Housing and Residential Education and is part of the RA's training in the summer. CAPS is the primary mental health resource on UNC's campus for students, and the service is covered by their tuition. They have individual and group counseling, medication management, and various other services. As a part of the RA training, CAPS writes a presentation about crisis prevention and acts as a physical presence of support when the training material covers sensitive topics, such as suicide.

The RA training on mental health issues, including suicide, includes three hours of didactic training and discussion on how to respond to crisis and students in concern and a role-playing portion where the RAs participate in the Behind Closed Doors (BCD) training. Some topics covered in the PowerPoint presentation that CAPS created include the RAs roles and responsibilities, how to take care of themselves, information about CAPS services and confidentiality, warning signs of students in distress, and how to respond to students who are suicidal. UNC-CH uses Behind Closed Doors for practicing how to handle situations RAs might encounter during the school year. One of these role-playing scenarios includes what to do if there is a resident who is exhibiting warning signs of suicide. RAs split into small groups to take part in BCD, with a trained DHRE professional leading the groups.

Below is a logic model of DHRE Resident Advisor training. Each objective has an outcome, but because the researcher did not create or implement the training, she did not measure the outcomes. Each year, the DHRE picks one or two of the objectives to measure.

The way they measure the objectives is by having the RAs self-report their growth in these areas (Gauthier, 2017). Some outcomes overlap with multiple objectives. The outcomes of the objective, “Inform RAs of crisis and safety protocols,” are increased knowledge and competence in “safety” and “crisis responses protocols and programming.” The outcomes of the objective, “Review the Community Standards” include increased knowledge and competence in “administrative elements of their positions” and “safety.” The outcome of the objective, “Equip RAs with skills needed for hall programming” is increased knowledge and competence in “crisis responses protocols and programming.” The outcomes of the objective, “Teach RAs how to exemplify Community Immersion” are increased knowledge and competence in “leadership,” “communication,” “supervision,” “interpersonal development,” and “cross cultural perspectives.” The outcomes of the objective, “Impart the necessary knowledge, skills, and awareness that RAs need to fulfill the duties of their positions” include all of the outcomes listed in the table below.

Objectives	Inputs	Outputs-Activities	Outputs-Participation	Intermediate Outcomes	Distal Outcomes
Inform RAs of crisis and safety protocols  Review the Community Living Standards  Equip RAs with skills needed for hall programming  Teach RAs how to exemplify Community Immersion  Impart the necessary knowledge, skills, and awareness that RAs need to fulfill the duties of their positions	DHRE Trainers  CAPS staff  PowerPoint presentations  Training design based on departmental need, job description, and position competencies (e.g., critical thinking, communication, interpersonal development, cross cultural perspectives, ethics and integrity)	Didactic training activities (e.g., presentations)  Experiential training activities (e.g., BCD)  Build relationships with coworkers and supervisors  Build relationship with CAPS staff	About 242 undergraduate RAs  6 training days	Increased knowledge of...  Administrative elements of their positions  Leadership  Communication  Supervision  Safety  Privacy  Crisis responses protocols, and programming	Increased competence in...  Administrative elements of their positions  Leadership  Communication  Supervision  Safety  Privacy  Crisis responses protocols, and programming  Critical thinking  Interpersonal development  Cross cultural perspectives  Ethics and integrity

Table 1. Logic model

As a part of the research study, the RAs were asked to complete questionnaires about suicide prevention at three time points: pre-training, post-training, and post-study. See Appendix A for the questionnaires. During the survey creation, items on the questionnaires were grouped into categories related to constructs the investigator wanted to measure, such as demographic characteristics, suicide-related knowledge, attitudes toward suicide, perceived role responsibility, perceived competency, and suicide-specific intervention behaviors (see Appendix B).

There are multiple published and unpublished scales regarding attitudes toward suicide and knowledge of suicide (Landschoot, Portzky, and van Heeringen, 2017; Kodaka, Poštuvan, Inagaki & Yamada, 2011; Domino, 1990). Reasons why the researcher chose to adapt some survey items from developed scales and create other items based on suicide prevention literature instead of adopting a whole scale were because no one scale measured what the researcher wanted to assess, the scales were too long, or they studied a different population (Haas, Hendin, & Mann, 2003; Lester, McIntosh, & Rogers, 2005; Schwartz, 2006; Leenaars & Lester, 1992; Domino & Leenaars, 1989; McIntosh, Hubbard, & Santos, 1985; Joiner, 2010; MacDonald, 2004).

The survey items on the measures consist of a mix of true/false/I don't know, short answer, multiple choice, and five-point Likert-scale responses. All items on the questionnaires are forced response, meaning that before participants proceed to the next page of survey items on Qualtrics, they must respond to each item on the current page. This will eliminate item non-response error. The questionnaires were reviewed and edited by a representative of the DHRE.

**Pre-training questionnaire.** The purpose of this sixty-three-item questionnaire was to establish a baseline to evaluate changes in suicide prevention constructs over the course of a semester. Participants were asked basic demographic information about their year in college, gender, time served as an RA, ethnicity, and race.

The pre-training questionnaire addressed six constructs: demographics, suicide-related knowledge, attitudes toward suicide, perceived role responsibility, perceived competency, and intervention behavior. The survey asked participants to respond to items related to the aforementioned constructs. Some items were adapted from measures researchers used in their studies and other items were created for the purpose of this study. Out of the sixty-three-items on the pre-training questionnaire, 6% were direct replicas from published measures, 29% were adaptations, and 65% were created for this study. All questions were grounded in suicide prevention research.

On Monday, July 24<sup>th</sup>, the RAs were sent an email with a link to the pre-training questionnaire (see Appendix F). The participants were given fourteen days to complete the survey. A DHRE coordinator distributed a reminder email to the RAs on Monday, July 31<sup>st</sup>, a week after the recruitment email was initially sent. The survey window closed the night before the start of the RA training.

**Post-training questionnaire.** The post-training questionnaire has the same items as the pre-training questionnaire, with the exception that the demographic questions were omitted and there are five items on the intervention behavior scale instead of four. The item, “Did you intervene with someone who demonstrated suicidal thoughts or behaviors this semester?” was included to assess participants’ intervention behavior during the semester following the training. Out of the fifty-nine items on the post-training

questionnaire, 7% were direct replicas from published measures, 31% were adaptations, and 62% were created for this study. The purpose of administering this fifty-nine-item questionnaire was to measure the proximal post-training outcomes, suicide-related knowledge, attitudes toward suicide, perceived role responsibility, perceived competency, and intervention behavior.

On Monday, August 14<sup>th</sup>, three days following the completion of the RA training, the RAs were sent an email with a link to the post-training questionnaire (see Appendix F). Participants had fifteen days to complete the survey. A DHRE coordinator distributed a reminder email to the RAs on Monday, August 21<sup>st</sup>, a week after the recruitment email was initially sent.

**Post-study questionnaire.** The fifty-nine-item post-study questionnaire is identical to the post-training questionnaire. The purpose of administering a post-study survey was to provide a method to evaluate the change of RAs' knowledge, attitudes, perceived role responsibility, perceived competency, and intervention behavior, the study's outcome variables, from the pre-training and post-training questionnaires. The post-study questionnaire assessed the distal effects of the training on the study's outcome variables in order to examine the long-term efficacy of the RA training. Examining the distal outcomes of the training is important because it will show if there is retention of suicide-specific gatekeeper skills and knowledge over time. If the study finds a lack of retention, then this could demonstrate the need for additional suicide prevention training for RAs during the school year.

On Monday, November 13<sup>th</sup>, the RAs were sent an email with a link to the post-study questionnaire (see Appendix F). The participants were given fifteen days to complete the



survey. A DHRE coordinator distributed a reminder email to the RAs on Monday, November 20<sup>th</sup>, a week after the recruitment email was initially sent.

### **Survey Sections**

Since the questionnaires included a mix of items extracted from scales used in published studies, items adapted from published scales, and items created for the study, there were no reliability coefficients for the measures or the sub-scales. After data was collected for the pre-training questionnaire, tests of reliability were conducted in IBM SPSS Statistics, version 24, to obtain reliability coefficients for the Knowledge, Attitude, Competency, and Responsibility scales to measure internal consistency.

**Demographics.** Five items in the pre-training questionnaire inquired about participants' demographic characteristics including their year in college, gender, time served as an RA, ethnicity, and race (see Appendix A). The response format of each item is multiple choice. These items were included so that the investigator could examine if any demographic characteristics affected the study's variables.

**Suicide-related knowledge.** In the suicide-related knowledge scale on the questionnaires, the investigator wanted to answer the following question: "How knowledgeable are RAs about suicide-related issues?" There are twenty-seven items on the suicide-related knowledge scale (see Appendix A). The participants were asked to respond to a series of items to assess their knowledge of suicide related issues. The items on this scale were created through a comprehensive review of suicide prevention literature. The response choices on the suicide-related knowledge scale are in the format of true/false/I don't know, multiple choice, and a five-point Likert-scale. On the five-point Likert-scale, a score of one is "strongly disagree" and five being "strongly agree."

On the suicide-related knowledge section in the pre-training questionnaire, the investigator created numbers 42 through 52 for this study based on information in the UNC-CH Department of Housing and Residential Education's RA protocol. These items were included to assess participants' knowledge of the warning signs of suicide and the process of responding to crisis situations as stated in the Department of Housing and Residential Education's protocol. On existing questionnaires, there were items that inquired about respondents' knowledge of suicide warning signs, but no one item included all the warning signs that were listed in the DHRE's protocol.

**Attitudes toward suicide.** In the attitudes toward suicide scale on the questionnaires, the investigator wanted to answer the following question: "Do RAs think suicide is a problem and how favorable are they toward suicide prevention and mental health treatment?" There are seven items on the attitudes toward suicide scale (see Appendix A). Item numbers 15, 16, 18, and 19 on the pre-training questionnaire inquire about participants' attitudes toward suicide prevention and their belief that treatment is likely to help. Item numbers 14, 17, and 20 on the pre-training questionnaire inquire about whether participants think suicide is a problem. This scale assessed participants' attitudes toward suicide and mental health treatment using one item created for this study and a mix of items extracted and adapted from a measure that Cerel, Bolin, & Moore (2013) used in their study. Cerel, Bolin, & Moore (2013) adapted their measure from the Kentucky Awareness of Suicide Survey (KASS). The response choices on the this current study's scale are in a five-point Likert-scale format, with a score of one being "strongly disagree" and five being "strongly agree."

On the attitudes toward suicide section in the pre-training questionnaire, numbers 15, 16, 17, and 20 are direct replications from Cerel, Bolin, and Moore's measure (2013). Item numbers 14 and 18 are adaptations from Cerel, Bolin, and Moore's measure (2013). Item 14 was changed from "Suicide is not a problem at the University of Kentucky" to "Suicide is not a problem at the University of North Carolina," and item 18 was adapted to make the wording more concise (Cerel, Bolin, & Moore, 2013, p. 50). Item number 19, "Mental health treatment may be helpful for individuals with suicidal thoughts or behaviors," was created for this study based on a comprehensive review of suicide prevention literature. It was included to measure participants' attitude toward mental health treatment. The investigator could not find a similar item in an existing questionnaire.

**Perceived competency.** In the perceived competency scale on the questionnaires, the investigator wanted to answer the following question: "How competent do RAs feel with handling potentially suicidal residents?" There are eleven items on the perceived competency scale (see Appendix A). These items were included to assess the extent to which participants perceive themselves as competent to handle potentially suicidal residents. It was adapted from a scale that Swanbrow (2013) created for his dissertation. His scale consisted of thirteen-items and had a Cronbach's Alpha of .92. On the perceived competency section in the pre-training questionnaire, each item was adapted from Swanbrow's scale (2013) to make the wording more concise. The investigator omitted two of the items in Swanbrow's scale (2013) from this study because the original items were tailored to the college where Swanbrow did his research. The response format on the scale

is a five-point Likert-scale, with a score of one being “strongly disagree” and five being “strongly agree.”

**Perceived role responsibility.** In the perceived role responsibility scale on the questionnaires, the investigator wanted to answer the following question: “How responsible do RAs feel for taking action to prevent suicide?” There are five-items on the perceived role responsibility scale (see Appendix A). These items were included to assess what participants’ view their responsibility is in regards to acting as a gatekeeper. In this study, the questions about role responsibility inquire about participants’ reactivity to residents’ needs, vigilance towards detecting residents’ problems, and perspectives on who is responsible for helping residents (Swanbrow, 2013). The scale used in this study was adapted from a measure that Swanbrow (2013) created for his dissertation. Swanbrow (2013) did not report a reliability coefficient for his scale. On the perceived role responsibility section in the pre-training questionnaire, each item was adapted from Swanbrow’s scale (2013) in order to make the wording more concise. The response choices on the scale are in five-point Likert-scale format, with a score of one being “strongly disagree” and five being “strongly agree.”

**Intervention behavior.** In the intervention behavior scale on the questionnaires, the investigator wanted to answer the following questions: “Have RAs been exposed to suicidal individuals?” “Have RAs intervened with suicidal individuals, how often did they intervene, and when is the last time they did so?” and “What is the most common reason RAs did not intervene with suicidal individuals?” There are four items on the intervention behavior scale in the pre-training questionnaire and five items on the intervention behavior scale in the post-training and post-study questionnaires. The additional item on

the post-training and post-study questionnaires, “Did you intervene with someone who demonstrated suicidal thoughts or behaviors this semester?” inquires about whether participants intervened with potentially suicidal students during the semester. The items on the intervention behavior scale were created for this study based on a review of suicide prevention literature.

The items, “Have you ever known someone who demonstrated suicidal thoughts or behaviors?” and “Did you intervene with someone who demonstrated suicidal thoughts or behaviors this semester?” inquire about participants’ lifetime and semester exposure to suicidal individuals. The item, “How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?” inquires about how many times participants intervened with suicidal individuals in lives. The item, “When is the last time you intervened with someone who demonstrated suicidal thoughts or behaviors?” inquires about the amount of time since participants’ last intervention behavior. The item, “If you have never intervened with someone who demonstrated suicidal thoughts or behaviors, why did you not intervene?” inquires about participants’ reasons for not intervening with suicidal individuals when they had the opportunity to. The response formats are in true/false/I don’t know, multiple choice, and short-answer.

### **Ethical Considerations**

This study was conducted contingent upon the approval of the Institutional Review Board (IRB) at the University of North Carolina at Chapel Hill. The proposal met IRB’s criteria for conducting research with human subjects before recruiting participants. Even though the investigator did not anticipate any psychological harm to come to the participants, since suicide is a sensitive topic, steps were taken to minimize potential harm.

Participants were informed that participation of the study is voluntary and that they can stop at any time without penalty. Also, on the last page of each Qualtrics questionnaire, there was contact information listed for mental health services should the participants believe they need help. The contact information that was provided includes, (a) the number for the National Suicide Prevention Lifeline (1-800-273-8255) and (b) the number for Counseling and Psychological Services at UNC-CH (1-919-966-3658).

**Confidentiality.** Participants accessed the surveys through anonymous survey links that Qualtrics created for the pre-training, post-training, and post-study questionnaires. Qualtrics is a survey software that UNC approves for data collection and storage. The Qualtrics system maintains data behind a firewall and all data are accessed only by the owner of the survey who must provide password and user id. All pieces of data are keyed to that owner identification and cannot be accessed by anyone other than the owner or, by the owner's request, technical assistance staff. Technical assistance staff include server administrators at Qualtrics who will respond to hardware or software failures, or Teresa Edwards, the UNC administrator for the Qualtrics Software Agreement. Ms. Edwards has completed Human Subjects Research certification at UNC-CH, and will only access survey data at the account owner's request. The Qualtrics system has been used by government agencies, hundreds of universities and in many dissertations involving human subjects and even disadvantaged and at-risk populations, including government sponsored studies collecting data about physical and dependency abuse for adults and children. These are extremely confidential studies that have passed the highest level of scrutiny from human subjects committees.

Participants were not asked to divulge any personally identifiable information on the questionnaires, so participants' responses were not linked to them. In order to match participants' responses across three survey administrations, each survey asked participants to respond to the same four questions. These questions were: 1) What is the third letter of your first name? 2) What is the last digit of your phone number? 3) What is the second letter of your birthday month? 4) How many siblings do you have? A unique code was generated from these questions in order to match participants across survey administrations. For example, if Jane Doe has a birthday in May, has three siblings, and her phone number is 555-555-5050, Jane's unique code would be n0a1. This method of matching participants was explained to the investigator by the Qualtrics consultant at the Odum Institute at UNC-CH.

The RAs were informed that if they wanted to be included in a raffle for their participation in this study, they would have the option to enter their email address in a separate Qualtrics survey. Ten \$15 Amazon gift cards were the prizes in the raffle. When the RAs reached the end of the survey, they were automatically directed to a different survey where they were able to enter their name and email address. The inclusion of the separate survey allowed the investigator to compile a list of RAs (only their email addresses) who took the questionnaires without being able to link participants to their responses.

**Informed consent.** The first page of pre-training, post-training, and post-study questionnaires on Qualtrics were an informed consent form (See Appendix C). The participants needed to agree to the terms of the study before completing each survey.

### **Analysis of Research Questions**

A power analysis was conducted using G\*Power, version 3.1.9.2, to determine the number of participants needed in the analyses to obtain statistically significant findings. The data collected was examined and analyzed using IBM SPSS Statistics, version 24, a statistical program. Prior to data analysis, an analysis of the relevant assumptions was conducted. If the data was found to be non-normal, the analyses would be adjusted.

**Analysis of research question 1.** “What is the relationship between participants’ demographic characteristics and their suicide-related knowledge, attitudes toward suicide, perceived competency, and intervention behavior on the pre-training questionnaire?”

A one-way multivariate analysis of variance (MANOVA) and an independent sample t-test was conducted to examine the relationships between various demographic variables and participants’ knowledge, attitudes, perceived competency, and intervention behavior on the pre-training questionnaire. The MANOVA was conducted to compare first-year RAs and returning RAs’ suicide-related knowledge, perceived competency, and intervention behavior on the pre-training questionnaire. This statistic was chosen because the investigator wanted to determine if differences exist between two groups on multiple continuous dependent variables. The investigator conducted a one-way MANOVA instead of a series of one-way ANOVAs because with every test, there is a chance of getting a Type I error, which compounds as the number of tests increase. A medium effect size of .06, power of .80, alpha of .05, two group variables, and three response variables were used to determine the sample size needed for the MANOVA analysis. The calculated sample size was 186 participants.

In the analysis, the independent variable was Year in Program and the dependent variables were knowledge, perceived competency, and intervention behavior. Year in



Program was on a nominal scale and had two levels, first-year RAs and returning RAs. The dependent variables were measured as continuous variables. Suicide-related knowledge was calculated by summing the correct responses to items 26-52 in the suicide-related knowledge scale on the pre-training questionnaire. The total possible score that participants could get on the suicide-related knowledge scale on the pre-training questionnaire was twenty-seven. Perceived competency was calculated by summing the responses of the item numbers 53-63 in the perceived competency scale on the pre-training questionnaire. The total possible score that participants could get on the perceived competency scale on the pre-training questionnaire was fifty-five.

Intervention behavior for each group was determined using item number 11, "How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?" on the pre-training questionnaire. The higher the number, the more often they intervened.

First-year RAs are resident advisors who, at the time of the training, were beginning their first year as RAs. Returning RAs are resident advisors who had been employed as RAs for more than a half of a school year. Year in Program was measured by participants' responses to item number 7, "How many academic years have you completed as an RA?" in the demographics scale on the pre-training questionnaire. The item is multiple choice and prompted participants to choose a response that corresponded with how long they had been employed as RAs at UNC-CH. Participants who chose the response, "0," were assigned to the first-year group, and the remaining participants were included in the returning RA group.

Assumptions were checked before conducting the MANOVA. The investigator checked if the assumptions of normality, linearity, multicollinearity, and homogeneity of variances and covariances were met. Also, the investigator checked if there were any multivariate and univariate outliers in the data. The MANOVA gave F statistics for each dependent variable within the analysis. Even if the F statistics were significant, post hoc tests were not conducted because the independent variable in the analysis only has two groups.

Normality was checked using a Q-Q plot. Multivariate normality was checked using Shapiro-Wilk test of normality. A scatterplot matrix between the dependent variables was conducted to check linearity. Correlations were conducted among the independent variables in order to check the absence of multicollinearity. If any correlation was equal to or greater than 0.6, there might have been multicollinearity. If this happened, a composite variable would have been made or a strongly correlated pair would have been removed from the analysis and the MANOVA would have been re-run. A Box's M test was conducted to check homogeneity of covariances. If the p value for the test was above .001, the assumption would have been considered met and a MANOVA would have been conducted. If the assumption was violated, the Levene's test of homogeneity of variance was subsequently conducted in order to determine where the problem is. To check for the presence of multivariate outliers, the Mahalanobis Distances among participants was assessed. In a MANOVA, partial eta-squared shows how much variance is explained by the independent variable and it was used as a measure of effect size in this analysis.

An independent samples t-test was conducted to compare male RAs and female RAs' attitudes toward suicide on the pre-training questionnaire. This statistic was chosen

because the investigator wanted to conduct a simple means comparison and an independent samples t-test compares two independent groups on an approximately normal dependent variable. In order to determine if a relationship exists, there must be a significant difference between the two population averages. A medium effect size of .5, power of .80, and alpha of .05 were used to determine the sample size needed for the two-tailed independent samples t-test analysis. The calculated sample size was 128 participants.

In the analysis, there was one dependent variable and one independent variable. The dependent variable, attitudes toward suicide, was measured on a continuous scale and was calculated by summing the responses to item numbers 14-20 on the attitudes toward suicide scale in the pre-training questionnaire. The total possible score that participants could get on the attitudes toward suicide scale in the pre-training questionnaire was thirty-five. The independent variable, gender, had two levels and was measured on a nominal scale. Three assumptions were checked before conducting the t-test. The investigator checked if the assumptions of normality, independence, and homogeneity of variance were met.

Gender had two levels, male and female. Gender was measured by participants' responses to item number 6 in the demographics scale on the pre-training questionnaire. The item asked participants to choose a gender that they most identify with. There were seven response choices to the item: Male, female, transgender male, transgender female, gender variant/non-conforming, not listed, and prefer not to answer.

The vast majority of the suicide prevention literature the researcher compiled categorized gender into male and female, either because the researchers only surveyed

males and females, or because very few people responded that they identified as a different gender. In the current study, there were multiple gender answer choices so that the study was more inclusive, and so that the reported demographic characteristics of the participants was more representative of the RA population as a whole. Based on the suicide prevention research literature, the researcher postulated that there would be few participants that did not respond as “male” or “female.” Therefore, those who chose that they identified most with the male gender were included in the male group, and those who chose that they identified most with the female gender were included in the female group.

**Analysis of research question 2.** Is there a significant difference in participants' suicide-related knowledge, attitudes toward suicide, perceived competency, and intervention behavior between the pre-training questionnaire, post-training questionnaire, and post-study questionnaire?

Four one-way repeated measures ANOVAs were conducted with three time points to determine if there were any shifts in means among the levels of the independent variable. An ANOVA was chosen to analyze the relationship and test for means across the pre-training, post-training, and post-study administrations. Only participants who completed the pre-training, post-training, and post-study questionnaires were included in the ANOVA analyses. The investigator checked if the assumptions of normality and sphericity were met. A medium effect size of .25, power of .80, alpha of .05, one group variable, and three measurement variables were used to determine the sample size needed for the repeated measures ANOVA analyses. The calculated sample size was twenty-eight participants.

Time was treated as a discrete, independent variable in the analyses. It had three levels, pre-training administration, post-training administration, and post-study

administration. Suicide-related knowledge, attitudes toward suicide, perceived competency, and intervention behavior were the dependent variables in these analyses. Suicide-related knowledge was a continuous variable and calculated by summing the correct responses to item numbers 26-52 (on the pre-training questionnaire) or 22-48 (on the post-training and post-study questionnaires) in the suicide-related knowledge scale within each questionnaire. The total possible score a participant could obtain on the suicide-related knowledge scale was twenty-seven. Attitudes toward suicide was a continuous variable and was calculated by summing the responses to item numbers 14-20 (on the pre-training questionnaire) or 10-16 (on the post-training and post-study questionnaires) in the attitudes toward suicide scale within each questionnaire. The total possible score a participant could obtain on the attitudes toward suicide scale was thirty-five. The item "Suicide is not a problem at the University of North Carolina" was reversed scored.

Perceived competency was a continuous variable and was calculated by summing the responses to item numbers 53-63 (on the pre-training questionnaire) or 49-59 (on the post-training and post-study questionnaires) in the perceived competency scale within each questionnaire. The total possible score a participant could obtain on the perceived competency scale was fifty-five. Intervention Behavior was a continuous variable and was determined by item number 11 (on the pre-training questionnaire) or 6 (on the post-training and post-study questionnaires), "How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?" within each questionnaire.

When the analyses showed significant F statistics, pairwise comparisons were conducted to explain the differences, specifically to determine at what levels of the independent variable the differences lied. A pairwise comparison of estimated marginal means were conducted using the Bonferroni correction method to adjust the alpha level to compensate for multiplicity, or multiple testing.

**Analysis of research question 3.** To what extent does suicide-related knowledge, attitudes toward suicide, perceived role responsibility, and perceived competency predict intervention behavior on the post-study questionnaire?

A multiple linear regression analysis was conducted to test if suicide-related knowledge, attitudes toward suicide prevention, perceived role responsibility, and perceived competency significantly explained the variability of participants' intervention behavior on the post-study questionnaire. Intervention behavior was the criterion variable and knowledge, attitudes, perceived role responsibility, and perceived competency were the predictor variables in this analysis. A medium effect size of .25, power of .80, alpha of .05, and four predictor variables were used to determine the sample size needed for the multiple linear regression analysis. The calculated sample size was 53 participants.

Prior to running the analyses, various assumptions were checked. The investigator checked that the dependent variable had a linear relationship with the independent variable and that the standard errors were independently and identically distributed. Correlations were conducted among the independent variables in order to check for multicollinearity. If any correlation was equal to or greater than 0.6, multicollinearity might have existed. If this would have happened, a composite variable would have been

made or a strongly correlated pair would have been removed from the analysis and the analysis would have been re-run.

A multiple linear regression analysis was a predictive analysis conducted to examine the relationship between one criterion variable and multiple predictor variables. In this study, by running a multiple linear regression, the investigator was able to determine if one variable explained the performance of participants' intervention behavior more so than another variable. A post hoc test was not necessary to conduct because the independent variable had one level, and the model yielded the only effect coefficient needed to determine significance.

Intervention Behavior was a continuous variable determined by item number 6, "How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?" on the post-study questionnaire. The higher the score was, the more often RAs intervened with potentially suicidal individuals. Suicide-related knowledge was a continuous variable and was calculated by summing the correct responses to item numbers 22-48 in the suicide-related knowledge scale on the post-study questionnaire. The total possible score on the suicide-related knowledge scale was twenty-seven. The higher the summed score was, the more suicide-related knowledge participants had. Attitudes toward suicide was a continuous variable and was calculated by summing the responses to item numbers 10-16 in the attitudes toward suicide scale on the post-study questionnaire. The total possible score on the attitudes toward suicide scale was thirty-five. The higher the summed score was, the more RAs thought suicide was a problem and the more favorable they were toward suicide prevention and mental health treatment.

Perceived role responsibility was a continuous variable and was calculated by summing the responses to item numbers 17-21 in the perceived role responsibility scale on the post-study questionnaire. The total possible score on the perceived role responsibility score was twenty-five. The higher the summed score was, the greater participants' perceived responsibility was in regard to taking action to prevent suicide. Perceived competency was a continuous variable and was calculated by summing the responses to item numbers 49-59 in the perceived competency scale on the post-study questionnaire. The higher the summed score was, the greater participants' perceived competency was in regard to suicide prevention.



## **Chapter IV: Results**

A preliminary analysis and a power analysis were conducted for each hypothesis. A test for internal consistency was run on the pre-training survey after the survey distribution period ended. Cronbach alpha, an index of reliability expressed as a number between 0 and 1, was calculated for five scales in the questionnaire: Perceived Role Responsibility, Perceived Competency, Perceived Knowledge, Attitude, and Intervention Behavior (Tavakol & Dennick, 2011). The Perceived Role Responsibility scale had a poor Cronbach alpha of .539. The Perceived Competency scale had an acceptable Cronbach alpha of .773. The Perceived Knowledge scale had an acceptable Cronbach alpha of .698. The Attitude scale had a poor Cronbach alpha of .596. The Intervention Behavior scale (questions 10-12) had a poor Cronbach alpha of .074. After consulting with the Odem Institute at UNC-CH, the last question in the Intervention Behavior scale (“If you have never intervened with someone who demonstrated suicidal thoughts or behaviors, why did you not intervene?”) was not included in the internal consistency analysis.

### **Research question 1**

#### **Hypothesis 1: Difference Between Number of Years as a Resident Advisor and Knowledge, Competency, and Intervention Behavior**

A one-way MANOVA was run to determine the effect of the year served as resident advisors on perceived knowledge of suicide-related issues, perceived competency to handle suicide related situations, and their lifetime intervention behavior. Participants were categorized as either new RAs or returning RAs. Assumptions were checked prior to

running the MANOVA. Descriptive analyses were conducted on the data using SPSS Grad Pack 24. The data were screened for normality, linearity, outliers, sample size, equality of variance-covariance matrices, homogeneity of variances, and multicollinearity. Ten participants had missing scores on one or more variables needed to run the analysis, so those individuals were omitted from the analysis. Two participants responded twice to the survey, so their second response was deleted. The duplicate responses were assumed to be from the same person as the unique codes were identical. Four participants were removed from the analyses because they did not meet the analytical requirements. Additionally, in cases where a participant's response to subsequent surveys showed a decrease in intervention behavior count, all survey responses from that participant were assumed invalid and removed from each analysis. In the pre-training survey, nine participants had decreasing intervention counts, either from the pre-training survey to the post-training survey, or from the post-training survey to the post-study survey. After removing these participants, the total sample size used in the MANOVA analysis was sixty.

An a priori power analysis was run prior to data analysis to determine if the sample size was large enough to produce statistical significance. The statistical test run in G\*Power for this analysis was MANOVA: Global effects. The power analysis, alpha = .05, partial eta-squared medium effect size = .06, number of groups = 2, number of variables = 3, power = .80, indicated that a sample size of 186 was needed to produce statistical significance. The study's sample size of sixty indicates that the study has reduced statistical power, meaning that there is a diminished ability to find a significant effect in the sample if the effect exists in the population. See Table 1 below for means and standard deviations of the Competency, Intervention Behavior, and Knowledge variables.

Table 1

*Descriptive Statistics*

	Year in Program	Mean	Standard Deviation	Range	N
Competency Score	New	73%	9.4%	18 (31-49)	26
	Returning	74.7%	10.2%	21 (29-50)	34
	Total	74%	9.8%	21 (29-50)	60
Number of Intervention Behaviors	New	2.69	5.136	25 (0-25)	26
	Returning	1.62	1.954	10 (0-10)	34
	Total	2.08	3.688	25 (0-25)	60
Knowledge Score	New	77.3%	14.9%	20 (6-26)	26
	Returning	83.8%	7.9%	9 (17-26)	34
	Total	81%	11.8%	20 (6-26)	60

One of the assumptions of the one-way MANOVA is that there are as many participants in each group of the independent variable as there are the number of dependent variables in the study. The current study has 26 new RAs, and 34 returning RAs, which meets the sample size assumption because there are at least three participants in each group of the independent variable. Intervention Behavior scores were not normally distributed for new and returning Resident Advisors, and neither were the Knowledge scores for new RAs, as assessed by Shapiro-Wilk's test ( $p < .05$ ); however, the Knowledge scores for returning RAs were normally distributed ( $p > .05$ ). Despite the non-normality concerns, the MANOVA was run because the one-way MANOVA is fairly robust to deviations from normality (Laerd, n.d.). The results of the Shapiro-Wilks' tests should be interpreted with caution because when used with sample sizes greater than fifty, even

slight deviations from normality might be flagged as significant (Laerd, n.d.). More emphasis should be given to inspection of Q-Q plots (Laerd, n.d.).

Visual inspection of the Q-Q plot for both the Intervention Behavior and Knowledge variables showed there to be a few outliers, falling far from the regression line.

Competency was normally distributed for new and returning RAs, as assessed by Shapiro-Wilk's test ( $p > .05$ ). Visual inspection of the Q-Q plots showed all data points to be relatively on the line of regression. Outliers are considered observations where the observed dependent value does not follow the trend of the independent variable (Karadimitriou and Marshall, n.d.).

Mahalanobis distance measures distances between two points in multivariate space (mahalanobis-distance). Varmuza and Filzmoser (2016) define the Mahalanobis distance between two points:  $(MD) = [(x_B - x_A)^T * C^{-1} * (x_B - x_A)]^{0.5}$ , where:  $x_A$  and  $x_B$  is a pair of points, and  $C$  is the sample covariance matrix (p. 46). There were two multivariate outliers, as assessed by Mahalanobis distance (MD) ( $p < .001$ ), but neither were removed from the data because it was not clear whether the answers were due to participant error. One outlier was in the Intervention Behavior variable, when the participant responded that they intervened twenty-five times in their lives. The second outlier was a score of six out of twenty-seven on the Knowledge scale.

Outliers are candidates for further inspection and could be caused by measurement errors, participant errors, or true measurements of unusual participants (Cohen, 2013, p. 91-92). There were five univariate outliers in the data, particularly within the Knowledge and Intervention Behavior dependent variables, as assessed by inspection of boxplots for values greater than 1.5 box-lengths from the edge of the box. However, the outliers were

kept in the data because they were not clearly measurement errors or participant errors. Outliers can be removed from the analysis, but it is generally the option of last resort and should not be done to make the data fit the model (Draper & Smith, 1998; Faraway, 2015). The outliers within the Knowledge variable were scores of six and fourteen out of a total possible score of twenty-seven. The three outliers within the Intervention Behavior variable were scores of twenty-five, ten, and ten. As assessed by scatterplot matrices, there were no clear linear relationships between the dependent variables and new and returning RAs. Pearson's product-moment correlation coefficients showed that the relationships were weak ( $r < .2$ ).

The assumption of homogeneity of variance-covariance matrices was violated, as assessed by Box's M test of equality of covariance matrices ( $p < .001$ ). This means that the variance-covariance matrices between the groups are not equal, and thus, the multivariate statistic, Pillai's Trace, was used when interpreting the MANOVA. Pearson correlation coefficients showed that there was no multicollinearity between Knowledge and Intervention Behavior ( $r = .115, p = .384$ ), Knowledge and Competency ( $r = .156, p = .233$ ), and Competency and Intervention Behavior ( $r = .182, p = .163$ ). There was homogeneity of variances for the Competency and Knowledge variables, as tested by Levene's Test of Homogeneity of Variance ( $p > .05$ ), which means that the variance within each of the populations is equal. However, the assumption of homogeneity of variance was violated for the Intervention Behavior variable ( $p < .05$ ). This suggests that the variance within the population is not equal, and thus, a transformation was conducted on the Intervention Behavior variable. Without the transformation of the Intervention Behavior variable, the results of the MANOVA suggest that there was no statistically significant difference

between years served as RAs and participants' suicide-related knowledge, competency, and intervention behavior,  $F(3, 56) = 2.324, p = .085$ ; Pillai's Trace = .111; partial  $\eta^2 = .111$ .

Pillai's Trace was used as the multivariate statistic because Pillai's Trace is fairly robust to violations of assumptions.

Since the Intervention Behavior and Knowledge variables were non-normal, had outliers, and the Intervention Behavior failed to meet the assumption of homogeneity of variances, transformations of the Intervention Behavior and Knowledge variables were attempted in order to reduce the skewness of the data (Cox, 2007). The Competency variable was not transformed because that variable was already approximately normal. To reduce right, or positive, skewness in the Intervention Behavior and Knowledge variables, a root transformation, logarithm, or reciprocal transformation could be used. The square root transformation was attempted because it is best for numbers that are relatively small and can be applied to zero values. The formula for the square root function is  $x \text{ to } x^{(1/2)} = \text{sqrt}(x)$ . This was computed using the "compute variable" command in SPSS.

The square root transformation was used in attempt to convert the moderately positively skewed data in the Intervention Behavior and Knowledge variables to normality. Transformations, such as the square root transformation, can affect the data's distribution shape. The square root transformation in particular was used because it can moderately reduce right skewness, which is what the current distribution showed. When the assumption of the equality of variance-covariance matrices was re-tested using both the new, transformed Intervention Behavior and Knowledge variables, the assumption of homogeneity of variance-covariance matrices was still violated as shown by Box's M test of equality of covariance matrices ( $p > .001$ ). Transforming the Intervention Behavior and

Knowledge variables only slightly positively affected the Box's M test, as the p value increased from  $p = 8.0488E-7$  to  $p = .000336$ . The results indicate that the variance-covariance matrices between the groups are different. However, when just transforming the Intervention Behavior variable and not the Knowledge variable, Box's M was significant and the assumption of homogeneity of variance-covariance matrices was met ( $p = .005$ ). This indicates that the variance-covariance matrices between the groups are similar after the transformation of solely the Intervention Behavior variable. This result is accurate, despite using a transformation statistic on the Intervention Behavior variable, because a transformation only manipulates data and does not disproportionately alter the values. The assumptions and MANOVA were re-run with the transformed Intervention Behavior variable, and the results are discussed below.

As assessed by Pearson correlation coefficients, there was no multicollinearity between Knowledge and Intervention Behavior ( $r = .184, p = .160$ ), Knowledge and Competency ( $r = .156, p = .233$ ), and Competency and Intervention Behavior ( $r = .280, p = .030$ ). There was a significant linear relationship between Competency and Intervention Behavior. There was homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance ( $p > .05$ ) for the Competency and Knowledge variables, which means that the variance within each of the populations is equal. The Intervention Behavior variable violated the assumption, which indicates that the variance was not equal within the population. The MANOVA was conducted even with the violation of this assumption, and thus a lower level of statistical significance was accepted for the MANOVA results. The findings of the MANOVA suggest that there was no statistically significant difference between years served as RAs and participants' suicide-related knowledge, competency, and

intervention behavior,  $F(3, 56) = 1.814, p = .115$ ; Pillai's Trace = .089; partial  $\eta^2 = .089$ .

Pillai's Trace was used as the multivariate statistic because Pillai's Trace is fairly robust to violations of assumptions.

## **Hypothesis 2: Difference Between Gender and Attitude**

An independent-samples t-test was run to determine if there were differences in attitudes toward suicide prevention between males and females. There were 60 participants in this analysis, twenty-three males and thirty-seven females. An a priori power analysis was run prior to data analysis to determine if the sample size is large enough to produce statistical significance. The statistical test run in G\*Power for this analysis was Means: Difference between two independent means (two groups). The power analysis, alpha = .05, Cohen's d medium effect size = .5, tail = 2, power = .80, and allocation ratio  $N_2/N_1 = 1$ , indicated that a sample size of 128 was needed to produce statistical significance. The study's sample size of 60 indicates that the study has reduced statistical power, meaning that there is a diminished ability to find a significant effect in the sample if the effect exists in the population.

There was one outlier in the data, as assessed by inspection of a boxplot. A male participant's attitude score of 19 out of 35 was considered to be an outlier. However, it was not removed because it was not clearly due to measurement or participant error. Attitude scores for each level of gender were normally distributed, as assessed by a visual inspection of a Normal Q-Q Plot. Shapiro-Wilk's test was not used to test for normality because with sample sizes greater than fifty, even small deviations from normality might be considered significant (Laerd, n.d.). There was homogeneity of variances for attitude scores for males and females, as assessed by Levene's test for equality of variances ( $p =$



.723). Results of the t-test showed that attitudes toward suicide and mental health treatment were more positive in females ( $M = 29.03$ ,  $SD = 2.872$ ) than in males ( $M = 27.35$ ,  $SD = 3.113$ ). There was a statistically significant difference in mean attitude scores between males and females,  $t(58) = 2.132$ ,  $p = .037$ ,  $d = .56$  with the mean female attitude score as 1.679, 95% CI [.103 to 3.256], higher than the mean male attitude score. The effect size of .56 indicates a medium effect size, as described by Cohen (1988). Effect size is a statistic that measures the practical significance of results. Means and Standard Deviations displayed in Table 2 below.

Table 2

*Means and Standard Deviations of Attitude by Gender*

	Gender	Mean (% positive attitude)	Standard Deviation	Range	N
Attitude	Male	78.1%	8.9%	14 (19-33)	23
	Female	83%	8.2%	10 (25-35)	37

### **Hypothesis 3: Relationship Between Survey Administration and Attitude, Competency, and Intervention Behavior**

A one-way repeated measures ANOVA was conducted to determine whether there was a significant difference in Attitudes toward Suicide Prevention over a four-month time period. Originally, eighteen participants were included in this analysis. Due to participants' data entry errors, six participants were removed from the analysis; Therefore, the responses of twelve participants were analyzed These errors occurred when participants were asked to input the number of times in their lives that they intervened

with suicidal individuals. These participants reported intervening more often in the first or second survey than in the second or third survey. For example, one participant reported in the pre-training survey that they intervened 100 times in their lives, in the post-training survey reported intervening 50 times in their lives, and in the last survey, reported intervening 100 times.

An a priori power analysis was run prior to data analysis to determine if the sample size is large enough to produce statistical significance. The statistical test run in G\*Power for this analysis was ANOVA: Repeated measures, within factors. The power analysis, alpha = .05, Cohen's f medium effect size = .25, power = .80, number of groups = 1, number of measurements = 3. Correlation among repeated measures = .5, and nonsphericity correction = 1 indicated that a sample size of twenty-eight was needed to produce statistical significance. The study's sample size of twelve indicates that the study has reduced statistical power, meaning that there is a diminished ability to find a significant effect in the sample if the effect exists in the population. Means and Standard Deviations of Attitude, Competency, and Intervention Behavior variables are displayed in Tables 3, 4, and 5.

**Attitude.** There were no Attitude outliers in the data. The data was normally distributed at each time point, as assessed by the Shapiro-Wilk test ( $p > .05$ ). The assumption of sphericity was met, as assessed by Mauchly's test of sphericity,  $\chi^2(2) = 1.612$ ,  $p = .447$ . Sphericity is when the variances of the differences between all time point combinations are equal (Marshall, N.D.). This is similar to the homogeneity of variances assumption in a one-way ANOVA (Marshall, N.D.). Attitude scores increased from the pre-training ( $M = 28.17$ ,  $SD = 2.17$ ), to post-training ( $M = 28.33$ ,  $SD = 2.42$ ), and post-study ( $M =$

28.83, SD = 3.41) survey administrations, however, the changes were not significant ( $p > .05$ ). There were no statistically significant changes in RA's attitude toward suicide prevention over time,  $F(2, 22) = .493$ ,  $p = .617$ , partial  $\eta^2 = .043$ . Post hoc analyses were not conducted because there was not a significant F statistic.

Follow-up polynomial contrasts indicate no significant linear trends among the means,  $F(1, 11) = .677$ ,  $p = .428$ , partial  $\eta^2 = .058$ . These findings suggest that even though attitude scores increased over the course of the semester, the change was not significant ( $p > .05$ ).

Table 3

*Means and Standard Deviations of Attitude at Three Time Points*

Attitude	Mean (% positive attitude)	Standard Deviation	Range	N
Pre-Training	80.5%	6.2%	7 (25-32)	12
Post-Training	81%	6.9%	8 (24-32)	12
Post-Study	82.4%	9.7%	11 (22-33)	12

**Competency.** A one-way repeated measures ANOVA was conducted to determine whether there was a significant difference in Suicide Prevention Competency over a four-month time period. There were three outliers, two in the pre-training condition and one in the post-study condition, but they were kept in the analysis because they were not clearly measurement or participant error, with scores of 31, 32 and 50, out of a total possible score of 55. The data was approximately normally distributed across time, as assessed the inspection of boxplots and the Shapiro-Wilk test ( $p > .05$ ), respectively. The assumption of

sphericity was met, as assessed by Mauchly's test of sphericity,  $\chi^2(2) = 4.264, p = .119$ . Sphericity is when the variances of the differences between all time point combinations are equal (Marshall, N.D.). There were statistically significant changes in RA's Competency over time,  $F(2, 22) = 4.285, p = .027, \text{partial } \eta^2 = .280$ , with competency scores increasing from the Pre-Training condition ( $M = 40.25, SD = 5.154$ ) to the Post-Training ( $M = 43.42, SD = 4.188$ ) and Post-Study ( $M = 43.17, SD = 4.687$ ) conditions. The ANOVA showed that there were mean differences across the levels of the independent variable, but the ANOVA did not specify which means were significant. This is why a post hoc analysis was conducted. A Bonferroni's post hoc analysis was used, which utilizes a Bonferroni correction for multiple comparisons. A Bonferroni post hoc analysis is appropriate for repeated measures ANOVAs (University of Bedfordshire, n.d.). Even though the ANOVA was significant, the Bonferroni post hoc analysis revealed no significant pairwise comparisons. This could be due to the study's diminished power from having a small sample size. Follow-up polynomial contrasts indicate that there was a significant linear component in this repeated measure ANOVA,  $F(1, 11) = 4.905, p = .049, \text{partial } \eta^2 = .308$ . This indicates that as the semester progressed, participants' competency increased linearly. These findings suggest that there was a significant increase in participants' suicide prevention competency across survey administrations.

Table 4

*Means and Standard Deviations of Competency at Three Time Points*

Competency	Mean (% competent)	Standard Deviation	Range	N
Pre-Training	73.2%	9.37%	19 (31-50)	12

Post-Training	79%	7.6%	16 (34-50)	12
Post-Study	78.5%	8.5%	18 (32-50)	12

**Intervention Behavior.** A one-way repeated measures ANOVA was conducted to determine whether there was a significant difference in Suicide Intervention Behavior over a four-month time period. There was one outlier in each the pre-training, post-training, and post-study conditions, as assessed by the inspection of boxplots. These outliers were kept in the analysis because they were not clearly due to measurement error or participant error. Also, the outliers were not unusual outliers, with one participant responding that they intervened ten times in their lives. The data was not normally distributed at each time point, as assessed by the Shapiro-Wilk test ( $p < .05$ ). The assumption of sphericity was not met, as assessed by Mauchly's test of sphericity,  $\chi^2(2) = 11.021$ ,  $p = .004$ . This means that not all timepoint combinations had equal variances. To correct for the violation of sphericity, a Greenhouse-Geisser correction was used. The Greenhouse-Geisser procedure estimates epsilon, which is then used to reduce the degrees of freedom in the repeated measures ANOVA. Epsilon ( $\epsilon$ ), as defined by Greenhouse and Geisser, has the following

formula: 
$$\hat{\epsilon}_{GG} = \frac{k^2(\overline{diagS} - \bar{S})^2}{(k-1)(\sum_{i=1}^k \sum_{j=1}^k s_{ij}^2 - 2k \sum_{j=1}^k \bar{s}_i^2 + k^2 \bar{S}^2)}$$
, where  $k$  is the number of time conditions,  $S$  is the sample covariance matrix,  $\bar{S}$  is the mean of all the elements in the sample covariance matrix, and  $\overline{diagS}$  is the mean of the variances (Zaiontz, 2015). Epsilon takes a value between  $\frac{1}{k-1}$  and 1 (Zaiontz, 2015). Epsilon was calculated as .600. This changed the F test from  $F(2, 22) = 4.529$ ,  $p = .023$ , partial  $\eta^2 = .292$  to  $F(1.199, 13.191) = 4.529$ ,  $p =$

.047, partial  $\eta^2 = .292$ . The Greenhouse-Geisser increased the p-value to compensate for the violation of sphericity (Laerd, 2013).

There were changes in Intervention Behavior over time,  $(1.199, 13.191) = 4.529$ ,  $p = .047$ , partial  $\eta^2 = .292$ , so a Bonferroni's post hoc analysis was conducted. The analysis revealed that there were no significant pairwise comparisons. Follow-up contrasts were run, and no significant linear or quadratic contrasts were found. Since the ANOVA was statistically significant, the study's hypothesis that there would be a significant increase in participants' intervention behavior across time can be accepted.

The Intervention Behavior variable was not normally distributed, so the examiner also conducted the Related-Samples Friedman's Two-Way Analysis by Ranks test, which is the non-parametric equivalent of the one-way ANOVA. A Friedman test was run to determine if there were differences in suicide intervention behavior during a four-month time period. Intervention behavior increased from the Pre-Training ( $Mdn = .50$ ) to the Post-Training ( $Mdn = 1.00$ ) and Post-Study ( $Mdn = 2.00$ ) conditions, and the differences were statistically significant,  $\chi^2(2) = 7.538$ ,  $p = .023$ . The hypothesis that there would be a significant increase in participants' intervention across time can be accepted. Pairwise comparisons with a Bonferroni correction were performed to determine which time points were significant. No significant pairwise comparisons were found. This suggests that even though the Friedman's test was significant, a further look into which time points had significant differences revealed that there were no significant differences. This could be due to the analysis's low statistical power and small sample size.

Table 5

*Means and Standard Deviations of Intervention Behavior at Three Time Points*

Intervention Behavior	Mean (# of interventions)	Standard Deviation	Range	N
Pre-Training	1.75	2.896	10 (0-10)	12
Post-Training	1.83	2.855	10 (0-10)	12
Post-Study	2.17	2.758	10 (0-10)	12

#### **Hypothesis 4: Relationship between Survey Administration and Knowledge**

A one-way repeated measures ANOVA was conducted to determine whether there was a significant difference in Suicide-Related Knowledge over a four-month time period. Twelve participants were included in this analysis. A power analysis was run prior to data analysis to determine if the sample size is large enough to produce statistical significance. The power analysis, alpha = .05, Cohen's *f* medium effect size = .25, power = .80, number of groups = 1, number of measurements = 3. Correlation among repeated measures = .5, and nonsphericity correction = 1 indicated that a sample size of 28 was needed to produce statistical significance. The study's sample size of twelve indicates that the study has reduced statistical power, meaning that there is a diminished ability to find a significant effect in the sample if the effect exists in the population. Means and Standard Deviations of the Knowledge variable are displayed in Table 8.

There was one outlier in each of the pre-training, post-training, and post-study conditions, as assessed by inspection of boxplots. Those outliers were kept in the analysis because they were not clearly measurement or participant error, with scores of 14, 8, and 8 out of a total possible score of 27. The data was not normally distributed at each time point, as assessed by the Shapiro-Wilk test ( $p < .05$ ). The assumption of sphericity was

violated as assessed by Mauchly's test of sphericity,  $\chi^2(2) = 6.802, p = .033$ . To correct for the violation of sphericity, a Greenhouse-Geisser correction was used. Epsilon was calculated as .670. This changed the F test from  $F(2, 22) = .523, p = .600, \text{partial } \eta^2 = .045$  to  $F(1.339, 14.731) = .523, p = .553, \text{partial } \eta^2 = .045$ . The Greenhouse-Geisser increased the p-value to compensate for the violation of sphericity (Laerd, 2013).

There was a slight decrease in suicide-related knowledge from the pre-training questionnaire ( $M = 22.50, SD 3.060$ ) to the post-training questionnaire ( $M = 22.42, SD 4.719$ ), and an increase from the post-training questionnaire to the post-study questionnaire ( $M = 23.00, SD = 4.786$ ), but the differences were not significant ( $p > .05$ ). Follow-up polynomial contrasts indicate no significant linear or quadratic trends to the data ( $p > .05$ ). Since there were no statistically significant differences between the Knowledge means at the different time points, the hypothesis that there would be a significant increase in suicide-related knowledge from the pre-training questionnaire to the post-training questionnaire, but there would be a significant decrease in suicide-related knowledge from the post-training questionnaire to the post-study questionnaire cannot be accepted.

The Knowledge variable was not normally distributed, so the examiner conducted the Related-Samples Friedman's Two-Way Analysis by Ranks test, which is the non-parametric equivalent of the one-way ANOVA. A Friedman test was run to determine if there were differences in suicide related knowledge during a four-month time period. The median of the Knowledge scores increased from the Pre-Training ( $Mdn = 23.00$ ) to the Post-Training ( $Mdn = 24.00$ ) and Post-Study ( $Mdn = 24.50$ ) conditions, but the differences were not statistically significant,  $\chi^2(2) = 3.467, p = .177$ . The hypothesis that there would



be a significant increase, and then decrease, in participants' knowledge across time cannot be accepted.

Table 6

*Means and Standard Deviations of Knowledge at Three Time Points*

Knowledge	Mean (% knowledgeable)	Standard Deviation	Range	N
Pre-Training	83.3%	11.3%	12 (14-26)	12
Post-Training	83%	17.5%	17 (8-25)	12
Post-Study	85.2%	17.7%	17 (8-25)	12

**Hypothesis 5: Knowledge, Attitude, Responsibility, and Competency as Predictors of Intervention Behavior**

A simultaneous multiple linear regression was conducted to predict RA's intervention behavior on the post-study questionnaire from a composite of knowledge, attitude, competency, and responsibility scores. Thirty-two participants were included in the analysis. In cases where a participant responded multiple times to the same survey, all but the first survey response were removed. Additionally, in cases where a participant's response to subsequent surveys showed a decrease in intervention behavior count, all survey responses from that participant were assumed invalid and removed from each analysis. In the post-study questionnaire, five people responded twice. Also, nine people had decreasing intervention counts. For example, one participant was removed from the analysis because the participant reported intervening 50 times in their life. This participant was removed, because upon inspection from the participant's responses to the

other surveys (they did not complete survey 1, but they completed survey 2 twice), they said that they demonstrated intervention behavior one hundred times in the second survey, but fifty times in the third survey. One case was considered an outlier, but it remained in the data because the answer was believable; the participant said that they intervened 10 times in their life.

An a priori power analysis was run prior to data analysis to determine if the sample size is large enough to produce statistical significance. The statistical test run in G\*Power was Linear multiple regression: Fixed model, R<sup>2</sup>, deviation from zero. The power analysis, alpha = .05, f<sup>2</sup> medium effect size = .25, number of predictors = 4, power = .80, indicated that a sample size of fifty-three was needed to produce statistical significance. The study's sample size of thirty-two indicates that the study has reduced statistical power, meaning that there is a diminished ability to find a significant effect in the sample if the effect exists in the population. Means and Standard Deviations of the study's variables are displayed below in Table 7.

Table 7

*Means and Standard Deviation of Variables*

	Mean	Maximum Possible Score	Standard Deviation	Range	N
Intervention Behavior	2.00	--	2.155	10 (0-10)	32
Knowledge	85.4%	27.00	12.6%	19 (8-27)	32
Competency	79.6%	55.00	8.9%	19 (32-51)	32
Responsibility	63.52%	25.00	9.1%	11 (10-21)	32
Attitude	83.1%	35.00	8.9%	12 (22-34)	32

There was linearity as assessed by partial regression plots and a scatterplot of studentized residuals against the predicted values. A scatterplot matrix was also used to assess the relationships between the Knowledge, Competency, Responsibility, Attitude, and Intervention Behavior variables. None of the relationships failed the assumption of linearity. In standard multiple regression analyses, if the independent variable and dependent variable relationship is not linear, the results might underestimate the true relationship (Osborne & Waters, 2002).

There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.032. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. In the simultaneous multiple regression analysis, multicollinearity occurs when the independent variables are highly correlated with each other, which would make it difficult to understand which variable contributes to the explained variance. The assumption of multicollinearity assumes that the independent variables are moderately correlated with one another and do not have an overly strong relationship ( $r > 0.6$ ). To detect multicollinearity, Pearson correlation coefficients between the independent variables were obtained. These would show if any relationships were too strongly correlated (if  $r > 0.6$ ). The assumption of multicollinearity was met, as none of the independent variables had correlations greater than 0.6. No Tolerance collinearity statistics were below 0.1, which also indicates that there is no collinearity.

The assumption of normality was met, as assessed by visual inspection of a P-P plot and a Q-Q Plot. There were no Cook's distance values above 1, so no observations needed to be removed. Cook's distance measures what the regression model would look like if an

observation was removed, and it is calculated by removing an observation and then rerunning the regression analysis. Large Cook's Distance values suggest influential observations. There is one studentized deleted residual greater than  $\pm 3$  standard deviations (SD +4.765), but it was kept in the analysis because removing it would remove valid scores. Also, that one deleted residual did not have a high leverage or influence value. An observation that has high leverage will pull the regression line toward itself (MASH, n.d.). An influential observation is an outlier with high leverage that significantly impacts the slope and intercept of the multiple linear regression model (MASH, n.d.). In our model, there are six leverage values between .208 and .646, but they were kept in the data because removing them would remove useful data, and their studentized deleted residuals and Cook's values are within acceptable limits, and thus no observations were removed from the data.

A multiple linear regression was conducted to determine the best linear combination among variables predicting intervention behavior. Results showed that combined attitude, responsibility, competency, and knowledge scores statistically significantly predicted RAs' intervention behavior,  $F(4, 27) = 3.922, p = .012, f^2 = .582$ . The Attitude and Competency variables combined statistically significantly predicted RAs' intervention behavior  $F(2, 29) = 5.281, p = .011, f^2 = .364$ ; also, competency and attitude independently statistically significantly predicted RAs' intervention behavior,  $F(1, 30) = 4.241, p = .048, f^2 = .141$  and  $F(1, 30) = 10.247, p = .003, f^2 = .342$ , respectively. The Knowledge and Responsibility variables combined did not statistically significantly predict RAs' intervention behavior,  $F(2, 29) = 1.319, p = .283, f^2 = .090$ . Neither did responsibility and knowledge separately statistically significantly predict RAs' intervention behavior,  $F(1,$

30) = 1.310,  $p = .261$ ,  $f^2 = .043$  and  $F(1, 30) = 1.799$ ,  $p = .190$ ,  $f^2 = .060$ , respectively.

Attitude, responsibility, and knowledge combined statistically significantly predicted RA's intervention behavior,  $F(3, 28) = 5.359$ ,  $p = .005$ ,  $f^2 = .574$ . Competency, responsibility, and knowledge together did not statistically significantly predict RA's intervention behavior,  $F(3,28) = 2.230$ ,  $p = .107$ ,  $f^2 = .239$ .

$R^2$  for the overall model, the model with the four variables included, was 36.8% with an adjusted  $R^2$  of 27.4%. Regression coefficients and standard errors can be found below in Table 10. The results of the multiple linear regression analysis indicate that suicide related knowledge, attitudes, competency, and responsibility together can predict RAs' intervention behavior. Attitude toward suicide and mental health treatment best predicts intervention behavior ( $p = .003$ ), whereas suicide prevention responsibility is least likely to predict it ( $p = .261$ ).

Table 10

*Summary of Multiple Regression Analysis*

Variable	$B$	$SE_B$	$\beta$	Range	p-value
Intercept	-4.614	4.483			0.312
Knowledge	-.045	.114	-.071	19 (8-27)	0.190
Competency	.028	.081	.063	19 (32-51)	0.048
Responsibility	-.328	.160	-.345	11 (10-21)	0.261
Attitude	.400	.147	.578*	12 (22-34)	0.003
<i>Note.</i> * $p < .05$ ; $B$ = unstandardized regression coefficient; $SE_B$ = standard error of the coefficient; $\beta$ = standardized coefficient					



## **Chapter V: Discussion**

The aim of this study was to explore the role of resident advisors as suicide prevention gatekeepers on the University of North Carolina at Chapel Hill campus. The study assessed RAs' suicide-related knowledge, attitudes toward suicide and mental health treatment, perceived role responsibility in terms of suicide prevention, perceived competency to handle situations concerning suicide, and suicide-specific intervention behaviors. There is a growing body of research on suicide prevention training on college campuses. One approach to suicide prevention is the use of gatekeeper training with resident advisors. Prior to this study, on UNC-CH's campus, no information had been gathered on if there is a change in RAs' suicide specific knowledge, attitudes, perceived competency, perceived role responsibility, and intervention behavior after the completion of an RA summer training.

### **Difference Between Number of Years as a Resident Advisor and Knowledge, Competency, and Intervention Behavior**

Results of the current study showed that the number of years that resident advisors served as resident advisors does not statistically significantly affect their suicide-related knowledge, competency, or intervention behavior. This finding was not expected since prior research shows that increased practice in intervening with those who demonstrate suicidal thoughts and behavior can help people feel more competent (Taub & Servaty-Seib, 2011). Those who are returning RAs would likely have had more chance of intervening with students who had suicidal thoughts and behaviors. Returning RAs would have also

attended RA training for more than one year, which should have increased their knowledge of suicide-related issues.

One possible explanation why there was no statistical significance might be because the analysis had reduced statistical power due to a limited sample size. A power analysis was run prior to data analysis to determine if the sample size was large enough to produce statistical significance. The required sample size was 186, and the current analysis has a sample size of sixty. Reduced statistical power indicates that there is a diminished ability to find a significant effect in the sample even if the effect exists in the population. Future research should span across multiple universities to gather enough participants.

### **Difference in Attitudes between Genders**

Results of the current study showed that, on average, females tended to have more positive attitudes, whereas males showed more negative attitudes toward suicide prevention and mental health treatment. The difference in attitudes between genders was significant. The current study aligns itself with previous research that demonstrates a trend that males have more negative attitudes toward suicide prevention than females (Cascamo, 2013). In a study of 49 males and 68 females, Cascamo (2013) found that males had more negative attitudes toward suicide and mental health treatment than females, but that gatekeeper training made males' attitudes significantly more positive. Other research showed that males are less likely than females to seek help for mental health concerns, which could decrease the rate in which they intervene with others who are potentially suicidal (Oliver, Pearson, Coe, & Gunnell, 2005; Cerel, Bolin, & Moore, 2013). Like our study, Cascamo's study (2013) did not meet the sample size criteria in their power analysis.



The appearance of a statistically significant trend suggests that gender relevant training could be beneficial to improve males' attitudes toward suicide prevention. Even though our analysis had reduced statistical power due to a limited sample size, the findings still were significant. A power analysis was run prior to data analysis and it was determined that a sample size of 128 or greater would be needed to produce statistical significance. The current analysis had a sample size of 60, out of a population size of 242. This was a response rate of 24.8%.

### **Relationship Between Survey Administration and Attitude, Competency, Intervention Behavior, and Knowledge**

**Attitude.** Results of the current study showed that there was an increase in participants' attitudes toward suicide prevention across survey administrations, however the differences were not significant. This trend, an increase in attitude over time, supports previous research which purports that positive attitudes toward suicide prevention increase with participation in suicide prevention trainings (Taub et al., 2013; Ritts, 2016). Addressing resident advisors' attitudes toward suicide and mental health treatment is important for suicide prevention since attitudes can influence behavior (Botega et al., 2007; Taub & Servaty-Seib, 2011). For example, if one does not believe mental health treatment can help those demonstrating suicidal thoughts and behaviors, then they might be less likely to refer someone to receive professional help for those struggles. Also, if one does not believe suicide is preventable, then that can adversely impact their motivation to seek help for suicidal students. Analyses discussed later in the paper show that attitude can predict intervention behavior.

**Intervention behavior.** The hypothesis that there would be a significant increase in intervention behaviors as the semester progressed is supported. There were significant increases in intervention behavior over time. There could be multiple reasons for this increase. One reason is that as stress increases toward the end of the semester, the number of potentially suicidal students increases, which increases the opportunity for the RAs to intervene with these students. As the semester progresses, demands typically become greater, which could lead to increased stress and maybe even decreased sleep. Another reason could be that the training could have led to increased perceived competence, which could then impact the frequency of participants' intervention behavior.

**Competency.** In the current study, there was a significant increase in participants' suicide prevention competency across survey administrations, from the pre-training administration to both administrations later in the semester. Follow-up analysis showed that as the semester progressed, participants' competency progressively increased, but the competency scores dropped slightly at the end of the fall semester. These findings suggest that there was a significant increase in participants' suicide prevention competency across survey administrations, specifically from the pre-training administration to both administrations later in the semester. Even though there was not a significant decrease, competency scores decreased from the second to third survey administrations.

In the current study, perceived competency did increase across time, which might partly be due to the behavioral modeling portion of the RA training. Pasco et al. (2012) found that experiential trainings can increase one's perceived competency. RAs need to perceive themselves as competent to intervene with students who have suicidal thoughts and behaviors (Parries, 2014). As the semester progresses and there is a greater chance of

encountering suicide related situations, one's perception on their ability to handle these situations might increase with the additional practice.

**Knowledge.** The hypothesis that there would be a significant increase in suicide-related knowledge from the pre-training questionnaire to the post-training questionnaire, but there would be a significant decrease in suicide-related knowledge from the post-training questionnaire to the post-study questionnaire could not be supported. There was a slight decrease in scores from the pre-training questionnaire to the post-training questionnaire, and an increase in scores from the post-training questionnaire to the post-study questionnaire, but the findings were not significant. Even though the differences were not significant and the findings are not in alignment with research that states that as time progresses, once learned knowledge fades without rehearsal, this could still be true if surveyed over a longer period of time (Berman, Jonides, & Lewis, 2009). The results do not necessarily suggest that a suicide prevention refresher training would be beneficial and might help RAs retain previously learned suicide prevention knowledge, but with the addition of a behavioral modeling aspect in the training, the additional practice could help increase RAs' perceived competency and intervention behavior. As of now, UNC-CH does not provide such a training. Not all schools provide this because there is not a set suicide training curriculum across universities (Taub & Servaty-Seib, 2011).

A power analysis was run prior to data analysis and the necessary sample size that was calculated was 28, but the current analysis had a sample size of twelve. Five percent of UNC-CH RA's responded to all three surveys. Even with a sample size of twelve, there were statistically significant differences across time within the Competency and Intervention Behavior variables, but not within the Knowledge and Attitude variables.

## **Knowledge, Attitude, Responsibility, and Competency as Predictors of Intervention Behavior**

Results of the multiple linear regression analysis indicate that suicide related knowledge, attitudes, competency, and responsibility together can influence RAs' intervention behavior. Attitude toward suicide and mental health treatment can best predict intervention behavior, whereas suicide prevention role responsibility is least likely to predict it. This suggests that people tend to act more on their beliefs and less on their perceived role obligations. Previous research argued that resident advisors' knowledge, attitudes, responsibility, and competency could influence their suicide prevention behavior (Botega et al., 2007; Taub & Servaty-Seib, 2011; Swanbrow, 2013; Rallis, 2017; VanDeusen et al., 2015). While the current study's found that knowledge, attitude, responsibility, and competency together can influence one's intervention behavior, the constructs separately are variable in the extent to which they predict the behavior.

Attitude and Competency, together and separately, predicated statistically significantly suicide prevention intervention behavior. Knowledge and Role Responsibility, neither together nor separately, statistically significantly predicted intervention behavior. Even though Knowledge and Role Responsibility did not predict suicide prevention intervention behavior in our study, other research supports the relationship (Cimini et al., 2014; Rallis, 2017; Swanbrow, 2013; Tompkins & Witt, 2009). This suggests that additional research with a larger RA population should be conducted to explore the relationships further. One explanation why there was not a statistical significance is because there was reduced statistical power since our sample size was not large enough. A

sample size of fifty-three was needed, but the study had thirty-two participants. Response rate was 13.2%.

### **Limitations**

There are a number of limitations to the current study. The first limitation is that not enough RAs participated to ensure an adequate statistical power. There were a number of participants who did not complete the entire survey, so the researcher had to remove the partial responses from the analysis. There also were participants who had to be removed due to participants' data entry error. When asked about their lifetime intervention behavior count, their responses were not monotonically increasing, meaning that the number of interventions decreased during some time periods. The researcher made the decision that if the response to the question "How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?" was less than the number they responded with in a previous survey, then all of the responses from that participant were deleted in each analysis. A small sample size might make it more difficult to obtain statistical significance in the study, even if there is significance in the population. Even though the study found several relationships and trends, many were not statistically significant. Out of 242 RAs, only eighteen people completed all three surveys, and six had to be removed due to their impossible intervention behavior count.

A second limitation is that there could be an aspect of social desirability when participants answered the attitude, perceived competency, and perceived responsibility questions. Participants' scores for those scales might have been inflated due to a possible desire to be perceived as having more positive attitudes, competency, and responsibility.

A third limitation is that the study measures perceived competency, not how competent

they actually are. This distinction is important to note. A person can perceive themselves to be competent in handling suicide related situations, but in fact they could not be adept in these situations. Measuring actual competency could provide a better indication of the relationship between competence and intervention behavior. A person can perceive themselves to be competent but not know the campus resources or best ways to help. A fourth limitation is that measures of internal consistency were weak for the attitude, responsibility, and intervention behavior scales. This means that those scales were not the most reliable measurements of the constructs the study aimed to examine. Results should be viewed with caution. A factor analysis could be conducted on the scales to determine which items could be removed to increase the internal consistency. If more reliable scales could be created, it would be helpful to add the scales to the literature base for other researchers to use in future studies.

Another limitation of this study is the attrition rate. Out of a possible 242 RAs, sixty RAs completed the pre-training survey and had analyzable results; However, only twelve of those RAs responded to all three surveys. A last limitation is that participants' knowledge, attitude, competency, responsibility, and intervention behavior was assessed within a four-month window. Ideally, these variables would be re-assessed after a year or two to determine the change of RAs' perceptions and behavior. Viewing multiple semesters' worth of intervention behavior would more closely approximate the actual behavior of the RAs over a longer period of time.

## **Conclusion**

The findings of this study have addressed a gap in literature by exploring the relationships among RAs' suicide-related knowledge, attitudes toward suicide prevention

and mental health treatment, perceived role responsibility in terms of suicide prevention, perceived competency to handle situations concerning suicide, and suicide-specific intervention behaviors on the University of North Carolina at Chapel Hill campus. Results of the study showed that years served as RAs do not significantly influence resident advisors' suicide prevention intervention behaviors. On the other hand, gender is significantly associated with RAs' attitude toward suicide prevention and mental health treatment.

Results also showed that, over the course of the semester, RAs' attitudes toward suicide, their suicide-related knowledge, how competent they feel responding to suicide-related situations, and their intervention behaviors increased. Both perceived competency and intervention behaviors increased significantly. In a predictive analysis, it was found that knowledge, competency, attitude, and role responsibility predicted intervention behavior. However, attitude on its own best explained intervention behavior whereas, responsibility was least likely to explain it. Overall, the results of the study support the continued need for a suicide-prevention curriculum as a part of RA training.

Implementation of a suicide refresher training could prove beneficial for continuing to increase perceived competency in dealing with suicide related situations.

Future research should look into the relationship between suicide and sexual assault. Sexual assault is a risk factor of suicide and unfortunately, sexual assault is common across universities in the United States (Bryan et al., 2013; NCES, 2014; Stein et al., 2010). It would be useful to learn how suicide prevention trainings could best approach this topic to reduce the risk of suicide with people who have survived sexual assault.

Another topic that future research could look more deeply into is the Behind Closed Doors training and its efficacy in terms of suicide prevention.

Further research should be conducted on better understanding the relationships among suicide-related knowledge, competency, attitude, role responsibility, and intervention behavior, ideally over an extended period of time and with a large enough sample size to obtain meaningful results. Although trends were seen in the current study's analyses that align with previous research, a larger sample size could have yielded different, or significant, results. The fact that, in the multiple regression analysis, knowledge, competency, attitude, and role responsibility together predicted intervention behavior demonstrates that there could be more of a relationship between variables than what was seen in the MANOVA, t-test, and ANOVAs. Future researchers should consider expanding this, or a similar, study to multiple universities to obtain a larger sample size.

The findings of this study demonstrate a continued need for a suicide prevention training curriculum, with an added emphasis on gender relevant training. Since females are shown to have more positive attitudes toward suicide prevention and mental health treatment, some focus should be on shifting males' attitudes to become more positive toward suicide prevention and mental health treatment. Also, instead of a one-day training on mental health and crisis response issues, extending the amount of time that the training dedicates to suicide prevention could help increase participants' suicide-related knowledge, perceived competency, attitudes toward suicide prevention, perceived role responsibility, and intervention behavior. The extended time should include both a didactic portion where the RAs learn suicide-related facts and UNC-CH's policies around suicide prevention, and also a larger experiential training piece.



This study showed that perceived competency can predict intervention behavior, so to increase RAs' perceived competency, the UNC-CH training should allow more time for RAs to practice intervening in make-shift suicide and mental health specific scenarios. Also, since the current study highlighted a person's attitude toward suicide prevention as a major determinant for one's intervention behavior, the week-long training that RAs undergo should take this into consideration. Future research should explore how to increase one's attitude toward suicide prevention and mental health treatment and then advise UNC-CH's trainers on how to include it in the training.

## APPENDIX A: MEASURES

### Pre-training Questionnaire

This is a survey of your perceptions and opinions about suicide-related issues. Your responses are anonymous and are being used for research purposes.

You will be asked the following four questions at the start of each of the three surveys in this study. Since we will not ask you to divulge any identifiable information, the questions will serve as a unique code so that we can match responses over time.

1) What is the third letter of your first name?

*Response format:* text box

2) What is the last digit of your phone number?

*Response format:* text box

3) What is the second letter of your birthday month?

*Response format:* text box

4) How many siblings do you have?

*Response format:* text box

5) What is your grade classification?

*Response format:* multiple choice

*Response choices:* first-year, second-year, third-year, fourth-year

6) Which gender do you most identify as?

*Response format:* multiple choice

*Response choices:* Male, female, transgender male, transgender female, gender variant/non-conforming, not listed, prefer not to answer

7) How many academic years have you completed as an RA?

*Response format:* multiple choice

*Response choices:* 0, 0.5, 1, 1.5, 2, 2.5, 3, more than 3

8) Are you of Hispanic, Latino, or Spanish origin?

*Response format:* multiple choice

*Response choices:* yes, no, prefer not to answer

9) How would you describe yourself?

*Response format:* multiple choice

*Response choices:* American Indian or Native American, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, other, prefer not to answer

**People have different levels of experience with crisis situations. Some have no experience, whereas others have had a lot of experience. Please answer the following questions about your experiences.**

10) Have you ever known someone who demonstrated suicidal thoughts or behaviors?

*Response format:* multiple choice

*Response choices:* yes, no, I don't know

*Skip logic:* If participants respond, "no," Qualtrics will skip to item #14 in the pre-training questionnaire.

11) How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?

*Response format:* text box

12) When is the last time you intervened with someone who demonstrated suicidal thoughts or behaviors?

*Response format:* multiple choice

*Response choices:* last 3 months, last 6 months, last year, last 2 years, last 3 years, last 4 years, last 5+ years

*Display logic:* This question will be displayed if participants respond to #7 with a number greater than "0."

13) If you have never intervened with someone who demonstrated suicidal thoughts or behaviors, why did you not intervene?

*Response format:* multiple choice

*Response choices:*

I felt too uncomfortable intervening

I did not know what to say to the person

I did not know how to help the person

I did not think that mental health treatment would help the person

I thought the situation would resolve on its own

Other reason

*Display logic:* This question will be displayed if participants respond to #7 with the number, "0."

**People have different opinions about suicide and mental health. Please indicate how much you agree with the following statements.**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat agree 4 = Agree 5 = Strongly Agree**

14) Suicide is not a problem at the University of North Carolina.

15) Suicide is preventable.

16) Everyone should play a role in preventing suicide.

- 17) Suicide is a problem among college-aged individuals (15-24 year olds).
- 18) Most people who kill themselves usually show some signs of suicide.
- 19) Mental health treatment may be helpful for individuals with suicidal thoughts or behaviors.
- 20) Suicide is a problem on this campus.

**People have different opinions on how responsible they should be for helping students who are potentially suicidal. Please indicate how much you agree with the following statements.**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat Agree 4 = Agree 5 = Strongly Agree**

- 21) As an RA, I am responsible for helping my residents when they need it.
- 22) As an RA, I am responsible for solving the mental health problems of my residents.
- 23) If a resident is perceived to be suicidal, as an RA, I am responsible for talking to the resident about their suicidal thoughts.
- 24) As an RA, if I do not feel comfortable talking with a potentially suicidal resident, I should ask the Community Director to talk with the resident.
- 25) As an RA, if I am asked to keep a resident's suicidal thoughts or behaviors secret, I should respect the resident's wishes.

**People's perceptions of suicide-related issues vary. Please respond to the following items by answering true or false.**

- 26) You should avoid talking about suicide to people who are depressed because it might lead them to consider attempting suicide.
- 27) Suicide is the number one cause of death in the college student population.
- 28) Individuals who are socially isolated are at increased risk for attempting suicide.
- 29) Individuals who threaten to take their own life will not attempt suicide.
- 30) If a person's friend or family member died by suicide, that person is at greater risk for attempting suicide.
- 31) Individuals who are depressed are at greater risk for attempting suicide.

- 32) A minor setback (e.g., failing an exam) can increase the risk of suicide.
- 33) Limiting access to guns lessens the risk of an individual attempting suicide.
- 34) People most frequently attempt suicide mid-morning or early afternoon.
- 35) Most people who are suicidal do not ask for help with their mental health concerns.
- 36) Individuals who do not get enough sleep are at higher risk for attempting suicide.
- 37) In the young adult population, the majority of suicides are among non-Hispanic white people.
- 38) Individuals who have a sense of hopelessness are at greater risk for attempting suicide.
- 39) Someone who identifies as LGBTQ is at increased risk for attempting suicide.
- 40) People who want to take their own life will do so even if they received help for their mental health concerns.
- 41) People who talk about suicide are doing so to get attention.
- 42) If there is a crisis situation and you assess that the situation is life threatening (student is unconscious and/or non-responsive, has overdosed, or injuries have been sustained), you should immediately call the Department of Public Safety.
- 43) If there is a crisis situation and you see that there is a weapon involved, you should intervene and confront the behavior.
- 44) A statement (spoken or written) revealing a desire to die is a warning sign of suicide.
- 45) Prolonged depression is a warning sign of suicide.
- 46) A suicidal threat is a warning sign of suicide.
- 47) A sudden change of behavior is a warning sign of suicide.
- 48) Obtaining a gun or stockpiling pills is a warning sign of suicide.
- 49) Alcohol and drug abuse are warning signs of suicide.
- 50) A previous suicide attempt is a warning sign of suicide.
- 51) Planning one's own funeral is a warning sign of suicide.
- 52) Giving away prized possessions is a warning sign of suicide.

**Some people are more confident/comfortable than others in handling situations regarding suicide. Please indicate how much you agree with the following statements:**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat agree 4 = Agree 5 = Strongly Agree**

53) I am confident that I can notice when my residents may be thinking about suicide.

54) I am comfortable starting a conversation with my residents about their thoughts of suicide.

55) I am confident I will know when to ask my residents about suicide.

56) I am comfortable saying the word, "suicide," when asking my residents about their suicidal thoughts.

57) I know why it's best to use the word, "suicide," when addressing suicide with my residents.

58) I am confident I can explain to my residents the limits of confidentiality if they disclose suicidal thoughts or behaviors.

59) I am comfortable addressing my residents' concerns about the stigma of counseling.

60) I would be effective helping a resident who is thinking about suicide figure out how to get professional help.

61) After having talked with my residents about their suicidal thoughts or behaviors, I would feel comfortable following up with them to determine if they received professional help.

62) I am comfortable calling the Community Director on call if my resident does not agree to seek help after expressing thoughts of suicide.

63) I am confident that I know the appropriate campus resources in case I need to refer residents with suicidal thoughts to help.

## Post-training and Post-study Questionnaire

This is a survey of your perceptions and opinions about suicide-related issues. Your responses are anonymous and are being used for research purposes.

You will be asked the following four questions at the start of each of the three surveys in this study. Since we will not ask you to divulge any identifiable information, the questions will serve as a unique code so that we can match responses over time.

- 1) What is the third letter of your first name?
- 2) What is the last digit of your phone number?
- 3) What is the second letter of your birthday month?
- 4) How many siblings do you have?

**People have different levels of experience with crisis situations. Some have no experience, whereas others have had a lot of experience. Please answer the following questions about your experiences.**

- 5) Have you ever known someone who demonstrated suicidal thoughts or behaviors?

*Response format:* multiple choice

*Response choices:* yes, no, I don't know

*Skip logic:* If participants respond, "no," Qualtrics will skip to item #10 in the pre-training questionnaire.

- 6) How many times in your life have you intervened with someone who demonstrated suicidal thoughts or behaviors?

*Response format:* text box

- 7) When is the last time you intervened with someone who demonstrated suicidal thoughts or behaviors?

*Response format:* multiple choice

*Response choices:* last 3 months, last 6 months, last year, last 2 years, last 3 years, last 4 years, last 5+ years

*Display logic:* This question will be displayed if participants respond to #6 with a number greater than "0."

- 8) If you have never intervened with someone who demonstrated suicidal thoughts or behaviors, why did you not intervene?

*Response format:* multiple choice

*Response choices:*

I felt too uncomfortable intervening

I did not know what to say to the person

I did not know how to help the person

I did not think that mental health treatment would help the person

I thought the situation would resolve on its own

Other reason

*Display logic:* This question will be displayed if participants respond to #6 with the number, "0."

9) Did you intervene with someone who demonstrated suicidal thoughts or behaviors this semester?

*Response format:* multiple choice

*Response choices:* yes, no, I don't know

*Display logic:* This question will be displayed if participants respond to #6 with a number greater than "0."

**People have different opinions about suicide and mental health. Please indicate how much you agree with the following statements.**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat agree 4 = Agree 5 = Strongly Agree**

10) Suicide is not a problem at the University of North Carolina.

11) Suicide is preventable.

12) Everyone should play a role in preventing suicide.

13) Suicide is a problem among college-aged individuals (15-24 year olds).

14) Most people who kill themselves usually show some signs of suicide.

15) Mental health treatment may be helpful for individuals with suicidal thoughts or behaviors.

16) Suicide is a problem on this campus.

**People have different opinions on how responsible they should be for helping students who are potentially suicidal. Please indicate how much you agree with the following statements.**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat Agree 4 = Agree 5 = Strongly Agree**

17) As an RA, I am responsible for helping my residents when they need it.

18) As an RA, I am responsible for solving the mental health problems of my residents.

19) If a resident is perceived to be suicidal, as an RA, I am responsible for talking to the resident about their suicidal thoughts.



20) As an RA, if I do not feel comfortable talking with a potentially suicidal resident, I should ask the Community Director to talk with the resident.

21) As an RA, if I am asked to keep a resident's suicidal thoughts or behaviors secret, I should respect the resident's wishes.

**People's perceptions of suicide-related issues vary. Please respond to the following items by answering true or false.**

22) You should avoid talking about suicide to people who are depressed because it might lead them to consider attempting suicide.

23) Suicide is the number one cause of death in the college student population.

24) Individuals who are socially isolated are at increased risk for attempting suicide.

25) Individuals who threaten to take their own life will not attempt suicide.

26) If a person's friend or family member died by suicide, that person is at greater risk for attempting suicide.

27) Individuals who are depressed are at greater risk for attempting suicide.

28) A minor setback (e.g., failing an exam) can increase the risk of suicide.

29) Limiting access to guns lessens the risk of an individual attempting suicide.

30) People most frequently attempt suicide mid-morning or early afternoon.

31) Most people who are suicidal do not ask for help with their mental health concerns.

32) Individuals who do not get enough sleep are at higher risk for attempting suicide.

33) In the young adult population, the majority of suicides are among non-Hispanic white people.

34) Individuals who have a sense of hopelessness are at greater risk for attempting suicide.

35) Someone who identifies as LGBTQ is at increased risk for attempting suicide.

36) People who want to take their own life will do so even if they received help for their mental health concerns.

37) People who talk about suicide are doing so to get attention.

38) If there is a crisis situation and you assess that the situation is life threatening (student is unconscious and/or non-responsive, has overdosed, or injuries have been sustained), you should immediately call the Department of Public Safety.

39) If there is a crisis situation and you see that there is a weapon involved, you should intervene and confront the behavior.

40) A statement (spoken or written) revealing a desire to die is a warning sign of suicide.

41) Prolonged depression is a warning sign of suicide.

42) A suicidal threat is a warning sign of suicide.

43) A sudden change of behavior is a warning sign of suicide.

44) Obtaining a gun or stockpiling pills is a warning sign of suicide.

45) Alcohol and drug abuse are warning signs of suicide.

46) A previous suicide attempt is a warning sign of suicide.

47) Planning one's own funeral is a warning sign of suicide.

48) Giving away prized possessions is a warning sign of suicide.

**Some people are more confident/comfortable than others in handling situations regarding suicide. Please indicate how much you agree with the following statements:**

**1 = Strongly Disagree 2 = Disagree 3 = Somewhat agree 4 = Agree 5 = Strongly Agree**

49) I am confident that I can notice when my residents may be thinking about suicide.

50) I am comfortable starting a conversation with my residents about their thoughts of suicide.

51) I am confident I will know when to ask my residents about suicide.

52) I am comfortable saying the word, "suicide," when asking my residents about their suicidal thoughts.

53) I know why it's best to use the word, "suicide," when addressing suicide with my residents.

54) I am confident I can explain to my residents the limits of confidentiality if they disclose suicidal thoughts or behaviors.

55) I am comfortable addressing my residents' concerns about the stigma of counseling.

56) I would be effective helping a resident who is thinking about suicide figure out how to get professional help.

57) After having talked with my residents about their suicidal thoughts or behaviors, I would feel comfortable following up with them to determine if they received professional help.

58) I am comfortable calling the Community Director on call if my resident does not agree to seek help after expressing thoughts of suicide.

59) I am confident that I know the appropriate campus resources in case I need to refer residents with suicidal thoughts to help.

## APPENDIX B: SUMMARY OF SURVEY CONSTRUCTS

<b>Construct</b>	<b>Scale used</b>	<b>Description</b>
Demographics	Five items were included to gather information about participants' demographic characteristics.	The scale was developed for this study and based on a review of suicide prevention research.
Attitudes toward Suicide	Seven items were included to assess participants' attitudes toward suicide and mental health treatment.	Six items were adapted from a scale, U-KASS, that Cerel, Bolin, & Moore (2013) modified for their study. Cerel, Bolin, & Moore (2013) adapted their measure from the Kentucky Awareness of Suicide Survey (KASS).  One item was created for this study and based on a review of suicide prevention research.
Suicide-Related Knowledge	Twenty-seven items were included to assess participants' knowledge of suicide related issues.	The scale was developed for this study and based on a review of suicide prevention research and the DHRE's RA protocol.
Perceived Role Responsibility	Five items were included to assess how participants view their job in relation to suicide prevention on campus.	This scale was adapted from a measure that Swanbrow (2013) used in his dissertation.
Perceived Competency	Eleven items were included to assess the extent to which participants perceive themselves as competent to handle potentially suicidal residents.	This scale was adapted from a survey that Swanbrow (2013) used in his dissertation.

<p>Suicide-Specific Intervention Behavior</p>	<p>Four items were included on the pre-training survey to assess participants' suicide-specific intervention behavior.</p> <p>Five items were included on the post-training and post-study survey to assess participants' suicide-specific intervention behavior.</p>	<p>Five items were created for this study and based on a review of suicide prevention research.</p>
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## APPENDIX C: INFORMED CONSENT FORM

**Title of Study:** Survey of Suicide Prevention for Resident Advisors at a State University: The Impact of Training on Knowledge, Attitudes, Perceived Competency, Perceived Role Responsibility, and Intervention Behavior

**Principal Investigator:** Paula Zatko, UNC School Psychology Ph.D. candidate

**Faculty Advisor:** Dr. Steven Knotek, UNC School Psychology faculty

**What are some general things you should know about research studies?** You are being asked to take part in a web-based research study. Participation in the study is voluntary. You may choose not to participate, or you may withdraw your consent to participate without penalty. Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about participating in this study.

**What is the purpose of this study?** This study is designed to examine resident advisors' knowledge, attitudes, role responsibility, competency, and intervention behavior in regards to suicide prevention. This research may result in a better understanding of factors that should be included in suicide prevention trainings on college campuses.

**What will happen if you take part in the study?** You will be asked to complete three similar questionnaires this fall semester. An anonymous survey link to the first questionnaire will be sent to you about a week and a half before the resident advisor (RA) training, a link to the second questionnaire will be sent to you a few days following the RA training, and a link to the third questionnaire will be sent to you in mid-November. Completion of each questionnaire will take about 10 minutes.

**What are the possible risks and benefits from being in this study?** Research is designed to benefit society by gaining new knowledge. You may benefit from an increased awareness of suicide prevention. We anticipate few risks in this study. Suicide is a sensitive topic, so if you feel distressed, you can stop the study at any point without penalty.

**How will your privacy be protected?** Your responses are anonymous and cannot be linked to your identity.

**Will you receive anything for being in this study? Will it cost anything?** At the end of the survey, you will be automatically directed to a separate page where you will have the option to enter your email address if you want to be included in a raffle. Your email address will not be linked to your responses since you will enter the information on a separate form. Participation in this study will not cost you anything.

**What if you have questions about this study?** If you have questions, complaints, or concerns about the study, please contact Paula Zatko (pzatko@live.unc.edu) or Dr. Steven Knotek (sknotek@live.unc.edu).

**What if you have questions about your rights as a research participant?** All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns, or if you would like to obtain information or offer input, please contact the Institutional Review Board at 919-966-3113 or by email to [IRB\\_subjects@unc.edu](mailto:IRB_subjects@unc.edu).

If you do not want to participate in this study, please close the browser window.

If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, click “I agree” to begin the questionnaire.

## APPENDIX D: LETTER OF SUPPORT



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL

### HOUSING & RESIDENTIAL EDUCATION

Amy P. Gauthier, Ed.D  
Sr. Associate Director  
1218 SASB North  
CAMPUS BOX 5500  
CHAPEL HILL, NC 27599-5500  
<http://housing.unc.edu>

T 919.962-5401  
F 919.962.1006  
[agauthie@email.unc.edu](mailto:agauthie@email.unc.edu)

March 30, 2017

Re: Resident Advisors and Suicide Prevention on a College Campus

Dear Paula Zatko,

The Department of Housing & Residential Education is aware of your proposed research project. We understand that the involvement of the Department of Housing & Residential Education in assisting you to accomplish this project includes allowing you to administer three questionnaires to the UNC-CH resident advisors. One questionnaire will be electronically sent to the students prior to their Resident Advisor training in August, one will be sent two days after their training, and one will be sent in November.

As the Senior Associate Director of the Department of Housing & Residential Education, I support the involvement of the Department of Housing & Residential Education in this project.

Sincerely,

A handwritten signature in blue ink that reads "Amy Gauthier".

Amy Gauthier  
Senior Associate Director



**APPENDIX E: EMAIL DISTRIBUTION TIMELINE**

<b>Measure</b>	<b>Administration Date</b>	<b>Reminder Email Date</b>	<b>Date the Survey Window Will Close</b>
Pre-training questionnaire	Monday, 7/24	Monday, July 31	Saturday, 8/5
Post-training questionnaire	Monday, 8/14	Monday, 8/21	Friday, 8/28
Post-study questionnaire	Monday, 11/13	Monday, 11/20	Friday, 11/27

## APPENDIX F: PRE-TRAINING QUESTIONNAIRE EMAIL

Email title: Suicide Prevention Study

Hello Resident Advisors,

I hope that you enjoyed your summer break!

I am writing you to request your participation in a web-based study. With the support of the Department of Housing and Residential Education, I am conducting a study to examine resident advisors' training in suicide prevention. This study will help us understand what should be included in suicide prevention training for RAs at UNC.

This questionnaire is the first of three that you will be asked to complete. Completion of this questionnaire is voluntary and should only take about 10 minutes of your time. The second questionnaire will be emailed to you a few days after the summer RA training, and the third will be emailed to you in November.

The surveys are anonymous, so your responses will not be linked back to you.

Please click the link below to launch the survey website (or copy and paste the link into your Internet browser).

Survey link: [https://unc.az1.qualtrics.com/jfe/form/SV\\_6kQSsxCtW3YFuVD](https://unc.az1.qualtrics.com/jfe/form/SV_6kQSsxCtW3YFuVD)

At the end of the survey, you will be automatically directed to a separate page where you will have the option to enter your email address if you want to be included in a raffle. Ten \$15 gift cards will be raffled off. Your email address will not be linked to your responses since you will enter the information in a different survey.

Please complete this questionnaire by Saturday, August 5<sup>th</sup>. You won't be able to save the survey once you start it, so you will have to complete it in one session. Thank you in advance for your help!

If you have any comments or questions, please feel free to contact me at [pzatko@live.unc.edu](mailto:pzatko@live.unc.edu).

Sincerely,

Paula Zatko, M.S.  
Ph.D. Candidate  
School Psychology at UNC-CH  
[pzatko@live.unc.edu](mailto:pzatko@live.unc.edu)

## Post-Training Questionnaire Email

Title: Second Survey for Suicide Prevention Study

Hello RAs,

You may recall completing a questionnaire within the past few weeks about resident advisors' training in suicide prevention. I am writing you to request your continued participation in my web-based study. This study will help us understand what should be included in suicide prevention training for RAs at UNC.

This questionnaire is the second of three that you will be asked to complete. Completion of this questionnaire is voluntary and should only take about 10 minutes of your time. The third will be emailed to you in November.

The surveys are anonymous, so your responses will not be linked back to you.

Please click the link below to launch the survey website (or copy and paste the link into your Internet browser).

Survey link: [https://unc.az1.qualtrics.com/jfe/form/SV\\_bkkEqiRtHJ7ZOjb](https://unc.az1.qualtrics.com/jfe/form/SV_bkkEqiRtHJ7ZOjb)

At the end of the survey, you will be automatically directed to a separate page where you will have the option to enter your email address if you want to be included in a raffle. Ten \$15 gift cards will be raffled off. Your email address will not be linked to your responses since you will enter the information in a different survey.

Please complete this questionnaire by Friday, August 28<sup>th</sup>. You won't be able to save the survey once you start it, so you will have to complete it in one session. Thank you so much for your help!

If you have any comments or questions, please feel free to contact me at [pzatko@live.unc.edu](mailto:pzatko@live.unc.edu).

Sincerely,

Paula Zatko, M.S.  
Ph.D. Candidate  
School Psychology  
University of North Carolina at Chapel Hill  
[pzatko@live.unc.edu](mailto:pzatko@live.unc.edu)

## Post-Study Questionnaire Email

Title: Third Survey for Suicide Prevention Study

Hello RAs,

You may recall completing a questionnaire within the past few weeks about resident advisors' training in suicide prevention. I am writing you to request your continued participation in my web-based study. This study will help us understand what should be included in suicide prevention training for RAs at UNC.

This questionnaire is the third of three that you will be asked to complete. Completion of this questionnaire is voluntary and should only take about 10 minutes of your time.

The surveys are anonymous, so your responses will not be linked back to you.

Please click the link below to launch the survey website (or copy and paste the link into your Internet browser).

Survey link: [https://unc.az1.qualtrics.com/jfe/form/SV\\_8c9iPkd6jPLad1z](https://unc.az1.qualtrics.com/jfe/form/SV_8c9iPkd6jPLad1z)

At the end of the survey, you will be automatically directed to a separate page where you will have the option to enter your email address if you want to be included in a raffle. Ten \$15 gift cards will be raffled off. Your email address will not be linked to your responses since you will enter the information in a different survey.

Please complete this questionnaire by Friday, November 27<sup>th</sup>. You won't be able to save the survey once you start it, so you will have to complete it in one session. Thank you so much for your help!

If you have any comments or questions, please feel free to contact me at [pzatko@live.unc.edu](mailto:pzatko@live.unc.edu).

Sincerely,

Paula Zatko, M.S.  
Ph.D. Candidate  
School Psychology  
University of North Carolina at Chapel Hill  
[pzatko@live.unc.edu](mailto:pzatko@live.unc.edu)

**APPENDIX G: SUMMARY OF HYPOTHESES**

<b>Research Question</b>	<b>Hypothesis</b>	<b>Analysis</b>	<b>Instruments</b>	<b>Results</b>
RQ1	It was hypothesized that first-year RAs will score significantly lower on the knowledge, perceived competency, and intervention behavior scales on the pre-training questionnaire than returning RAs.	A one-way multivariate analysis of variance (MANOVA)	Pre-training questionnaire	Not significant $F(3, 56) = 1.814$ , $p = .115$ ; Pillai's Trace = .089; partial $\eta^2 = .089$
RQ1	It was hypothesized that female RAs will score significantly higher on the attitudes toward suicide scale on the pre-training questionnaire than male RAs.	An independent sample t-test	Pre-training questionnaire	Significant $t(58) = 2.132$ , $p = .037$ , $d = .56$
RQ2	It was hypothesized that there will be a significant increase in participants' attitudes, perceived competency, and intervention behavior from the pre-training questionnaire to the post-training and post-study questionnaires.	Three one-way repeated measures ANOVAs	1) Pre-training questionnaire  2) Post-training questionnaire  3) Post-study questionnaire	Attitude: Not significant $F(2, 22) = .493$ , $p = .617$ , partial $\eta^2 = .043$  Competency: Significant $F(1, 11) = 4.905$ , $p = .049$ , partial $\eta^2 = .308$  Intervention Behavior: Significant $\chi^2(2) = 7.538$ , $p = .023$

RQ2	It was hypothesized that there will be a significant increase in suicide-related knowledge from the pre-training questionnaire to the post-training questionnaire, but there will be a significant decrease in suicide-related knowledge from the post-training questionnaire to the post-study questionnaire.	A one-way repeated measures ANOVA	1) Pre-training questionnaire 2) Post-training questionnaire 3) Post-study questionnaire	Knowledge: Not significant $\chi^2(2) = 3.467$ , $p = .177$
RQ3	It was hypothesized that suicide-related knowledge, attitudes toward suicide, perceived role responsibility, and perceived competency will, together, explain the variability of intervention behavior on the post-study questionnaire.	A multiple linear regression analysis	Post-study questionnaire	Significant $F(4, 27) = 3.922$ , $p = .012$ , $f^2 = .582$

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