

AN ABSTRACT OF THE DISSERTATION OF

Emily Sallee for the degree of Doctor of Philosophy in Counseling presented on August 16, 2019.

Title: Interpersonal Predictors of Suicide Ideation and Attempt: Two Studies Based on Data Collected from a Statewide Survey of 8th and 11th Grade Students

Abstract approved:

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Counseling professionals working with adolescent populations are reporting more and more adolescents experiencing suicidal ideation and attempt each year. The current literature on adolescent suicidality lacks theoretical presence, appears to rely on implications from findings on suicidal adults, and seems limited to in-patient teenaged populations (e.g., Horton et al., 2015; King et al., 2017). Based on the Interpersonal Theory of Suicide (IPTs; Joiner et al., 2009), the purpose of this dissertation was to examine the extent to which the interpersonal constructs of thwarted belongingness and perceived burdensomeness predicted adolescent suicidal ideation and attempt in 8th and 11th graders. The researcher investigated the interpersonal constructs through two studies based on an archival dataset obtained from the 2017 Oregon Healthy Teen Survey. Both studies utilized binomial logistic regression analysis as the analytic method.

The first study ($N = 11,505$) examined the extent to which the interpersonal constructs of thwarted belongingness and perceived burdensomeness predicted adolescent suicidal ideation and attempt in 8th graders. Results indicated that 8th grade students were at higher risk of suicide ideation when experiencing poor mental/emotional health, poor sense of agency, increased school days missed due to feeling unsafe, feeling sad/hopeless, being not straight, being non-binary, and being bullied; the insignificant proxy items for suicide ideation were low perceived

self-efficacy, poor grades, having a caring teacher, and total school days missed. In the second model, results indicated that 8th grade students were at a higher risk of suicide attempt when experiencing poor mental/emotional health, poor sense of agency, poor grades, increased school days missed due to feeling unsafe, feeling sad/hopeless, being non-binary, and being bullied; the insignificant proxy items for suicide attempt were low perceived self-efficacy, being not straight, having a caring teacher, and total school days missed. The binomial logistic regression analysis showed that the model was able to correctly predict 87.1% of the suicide ideation outcome and 92.3% of the suicide attempt outcome.

The second study ($N=10,131$) examined the extent to which the interpersonal constructs of thwarted belongingness and perceived burdensomeness predicted adolescent suicidal ideation and attempt in 11th graders. Results indicated that 11th graders were at higher risk for both suicide ideation and attempt when characterized by poor emotional/mental health, poor sense of agency, feeling sad/hopeless, being not straight, and having a disability. The insignificant proxy items for both suicide ideation and attempt were low perceived self-efficacy, being non-binary, volunteering, and total school days missed. Binomial logistic regression analysis showed that the model predicted 85.6% of suicide ideation and 85.6% of suicide attempt in 11th grade students.

Overall, findings in both studies contribute to the growing body of knowledge that supports the constructs of perceived burdensomeness and thwarted belongingness in the IPTS to conceptualize suicide behavior. Specifically, findings in these studies offer strong support of the theory's application in understanding suicidal ideation and suicide attempts in 8th and 11th grade students. The findings offer relevant implications for practicing school counselors, clinical mental health counselors, counselor educators, and other stakeholders working with adolescent populations.

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Interpersonal Predictors of Suicide Ideation and Attempt: Two Studies Based on Data Collected
from a Statewide Survey of 8th and 11th Grade Students

by
Emily Sallee

A DISSERTATION

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APPROVED:

Major Professor, representing Counseling

Dean of the College of Education

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes the release of my dissertation to any reader upon request.

Emily Sallee, Author

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Chapter 1: General Introduction

Dissertation Overview

Adolescent suicidal behaviors are increasing with frequency and intensity every year. Professionals working with adolescents are ill-equipped to prevent and respond to this epidemic that crosses all genders, races, ethnicities, religions, and geographical locations (Stone et al., 2017). Unfortunately, research on adolescent suicide is rarely theory-driven, and mental health professionals are left with a gap between research findings and clinical practice (King et al., 2017). Joiner's Interpersonal Theory of Suicide (IPTS) offers an evidence-based model for suicide ideation and attempt, but the theory was developed and normed on adult populations (Joiner et al., 2009). These studies seek to examine the application of the IPTS to adolescent populations, specifically to 8th and 11th grade students in Oregon participating in the 2017 Oregon Healthy Teen (OHT) survey.

This dual-manuscript dissertation is a demonstration of scholarly work that uses the Manuscript Document Dissertation Format, as outlined by the Oregon State University Counseling Education Ph.D. Program Manual. Based on this format, Chapter 1 provides an overview of the topic the dissertation focuses on: suicide ideation attempt among students. Chapter 2 explores the interpersonal predictors of suicide ideation and attempt among 8th grade students, while Chapter 3 explores the interpersonal predictors of suicide ideation and attempt among 11th grade students. Both chapters present two research projects based on archival data from a statewide survey implemented in Oregon. Both projects address a common theme in working with adolescents. Chapter 4 links all manuscripts thematically and discusses the findings. Chapter 2 entitled, "Interpersonal Predictors of Suicide Ideation and Attempt among 8th Graders," and Chapter 3 entitled, "Interpersonal Predictors of Suicide Ideation and Attempt

among 11th Graders,” are unique in that they focus on suicidal behaviors and interpersonal factors among an adolescent population.

The two studies offered in this dissertation are closely connected, as both targeted Oregon student populations and interpersonal predictors of suicide ideation and suicide attempt. In addition, both studies in this dissertation build upon each other to fill a gap in the school and clinical counseling literature. The data for both manuscripts are archival datasets from a statewide survey implemented in Oregon. Data was obtained through submitting a data request to the institution managing the survey implementation (see Appendix A). The data used for both studies was collected in Spring 2017. The dataset used in the first manuscript (Chapter 2) focused on 11,505 8th grade students. The dataset used in the second manuscript (Chapter 3) focused on 10,131 11th grade students.

Importance to the Profession of School Counseling

The first manuscript, Chapter 2, is potentially significant to school counseling literature for several reasons. First, according to the American School Counselor Association (ASCA, 2018), the role of school counselors is to recognize the threat of suicide by identifying behavioral and social/emotional signs and risk factors. Additionally, school counselors impact the school system/environment by raising awareness of suicide, training school stakeholders, and identifying applicable resources within the school and surrounding community. These responsibilities require an ethical obligation to maintain current training and refer students engaging in suicidal behaviors to outside resources.

Relatedly, the majority of adolescents attend private or public schools that serve as the primary system to implement preventative and responsive interventions to support students at risk of or engaging in suicidal behaviors. Considering the amount of wake time spent in schools,

teachers and other staff are often the first to notice behavior changes in their students. It is within the safe and stable environment schools offer students that these significant student-adult relationships and systemic programming can best support this population.

Additionally, the potential value of the first manuscript is embodied by the dynamic interpersonal factors of its predictor variables. These factors respond to interventions that can be implemented within school systems, unlike other static risk factors that school stakeholders are unable to directly impact (e.g., family factors). This may provide practicing school counselors with evidence-based information on interpersonal predictors that are valuable in evaluating and modifying current school climate, student experiences, counseling programs and systems to more effectively and efficiently fulfill their roles, as previously outlined by ASCA (2018).

This manuscript also has the potential of contributing to the knowledge base of school counselors fulfilling these roles, as well as assisting school counseling advocates, such as ASCA, in their efforts and recommendations for student mindsets and behaviors. School counselors serve as advocates beyond the confines of the school environment and the school counseling profession by being a voice for students in the state legislative system. In the United States educational systems, 11 states mandate annual suicide prevention training, 16 states mandate non-annual training, and 15 states “encourage” training (American Foundation for Suicide Prevention, 2017). Additionally, 14 states, plus Washington, District of Columbia, require school suicide prevention, intervention, and postvention policies and/or suicide prevention programming statewide; eight other states “encourage” similar policies or programming. In considering this data set as illustrating youth specifically in Oregon, according to the American Foundation for Suicide Prevention (2016), Oregon is only 1 of 3 states (Hawaii and New Mexico) that do not have a state-adopted suicide prevention plan in K-12 schools. This

manuscript may be significant in providing data on interpersonal predictors valuable in supporting advocacy efforts for a state-adopted suicide prevention plan in Oregon.

Importance to the Profession of CMHC

The second manuscript, Chapter 3, is potentially significant to clinical mental health counseling literature for several reasons. First, according to the American Counseling Association (ACA), the role of counselors is to assess for suicide risk and provide responsive interventions to minimize risk and/or make appropriate referrals for further treatment (Montague, Cassidy, & Liles, 2016). Utilizing the Interpersonal Theory of Suicide as a framework for this manuscript has the potential to inform clinical mental health counseling best practices with this population. It may suggest that adolescent clients engaging in suicidal behaviors are unique from their adult counterparts, and as such, require unique interventions that incorporate environmental and familial interventions, as well as the individual himself.

Relatedly, the wraparound approach to counseling adolescents engaging in suicidal behaviors allows mental health counselors to impact multiple systems impacting the client. This manuscript potentially offers specificity around the interpersonal factors that influence adolescent suicidality, particularly those that are dynamic and responsive to intervention. Often, clients are referred to mental health counseling by school or other community stakeholders and these responsive efforts can be in collaboration with those adjacent systems.

Additionally, the outcome of this study may have the potential to inform political laws and policies addressing adolescent suicide, as well as more informally provide information to society and its advocates assisting in advocacy efforts and recommendations to professionals working with this population. For example, Basic Rights Oregon (BRO), in collaboration with other state agencies and stakeholders in Oregon, sponsored a senate bill (“Relating to policies,”

2019) that advocates for a youth suicide prevention concept directed at Oregon schools. BRO utilized the same data set from the 2017 Oregon Healthy Teen survey to highlight the LGBTQ adolescent population's heightened risk for suicide due to stigma and discrimination (Oregon Legislative Information System, 2019). This manuscript could potentially inform future legislative movements to better support youth engaging in suicidal behaviors.

Thematic Framework

Both of the manuscripts are examined through the lens of the Interpersonal Theory of Suicide (IPTs). The IPTs offers a framework to understand both the risk and protective factors of suicide. The IPTs suggests that suicidal behavior is correlated with feelings of *thwarted belongingness* and *perceived burdensomeness*, and suicidal behavior results when these negative cognitions are joined by *acquired capability* (Joiner et al., 2009). Through this framework, professionals can develop preventative programs and treatment plans to target the dynamic constructs of thwarted belongingness and perceived burdensomeness.

Thwarted belongingness and perceived burdensomeness are described as the dynamic interpersonal constructs of the theory that respond to both interpersonal and intrapersonal interventions. Thwarted belongingness embodies the interpersonal state of loneliness and the lack of reciprocally positive relationships, creating a social disconnection in which the need to belong is not met. Perceived burdensomeness describes the interpersonal state of hopelessness and the misperceptions of being a burden on loved ones, characterized by self-hatred and the belief that loved ones would be better off without them. These dynamic interpersonal constructs are built on beliefs of misperceptions on the external world around them (Joiner et al., 2009).

Manuscript I

Manuscript I, entitled “Interpersonal Predictors of Suicide Ideation and Attempt among 8th Graders,” is a retrospective, correlational study that used archival survey data collected in the 2017 Oregon Healthy Teen Survey to conduct a secondary analysis. A binomial logistic regression statistical test was used to conduct the secondary analysis since the outcome variables were measured with a binominal scale. The study contributes to the school counseling literature by filling a gap in empirical research done on suicidal ideation and behavior among adolescents. The research questions that guided this study were: (a) To what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicidal ideation, and (b) to what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicide attempts for Oregon 8th grade students? We hypothesize that perceived burdensomeness and thwarted belongingness would statistically significantly predict suicidal ideation as well as suicide attempts in these students.

The dataset from the 2017 Oregon Health Teen survey consists of 11,505 of 8th grade students, self-reporting as 0.2% 12-years-old or younger, 37.0% 13-years-old, 60.9% 14-years-old, and 1.9% 15-years-old. The participants presented as 47.6% female, 47.2% male, and 5.2% non-binary/GNC, which includes those who identify as transgender, gender non-conforming, genderqueer, gender fluid, intersex/intergender, or something else. Among the 8th grade participants, 83.9% reported they spoke English at home; the racial/ethnic composition was as follows: 59.2% White, 25.6% Hispanic/Latino, 3.9% Asian, 2.3% Black or African American, 8.2% Other, and 0.8% Multiple.

The binomial logistic regression analysis indicated that the ideation and attempt models could be classified as medium strong, with the ideation model being the stronger of the two. In

the ideation model, seven of the proxy items proved to significantly predict suicide ideation in this population. The statistically significant items that described perceived burdensomeness were poor emotional/mental health, poor sense of agency, missing school due to unsafe feelings, and feeling sad/hopeless; the insignificant items were low perceived self-efficacy and poor grades. The statistically significant items that described thwarted belongingness were being not straight, being non-binary, and being bullied; the insignificant items were having a caring teacher and total school days missed. Similarly, in the attempt model, seven of the proxy items proved to significantly predict suicide attempt in this population. The statistically significant items that described perceived burdensomeness were poor emotional/mental health, poor sense of agency, poor grades, missing school due to unsafe feelings, and feeling sad/hopeless; the insignificant item was low perceived self-efficacy. The statistically significant items that described thwarted belongingness were being non-binary and being bullied; the insignificant items were being not straight, having a caring teacher, and total school days missed.

The researchers expected fewer, more targeted predictors of suicide attempt funneled from the predictors of suicide ideation, yet that was not the case for this data set. The significant items that differed between the models were being not straight (predictor of ideation) and having poor grades (predictor of attempt). There were a few constant insignificant items, including low perceived self-efficacy, having a caring teacher, and total school days missed. The researchers hypothesize that the unique features of the early adolescent developmental period play a large role in the nuances of the results. Details of the study and its findings are found in Chapter 2.

Manuscript II

Building upon the first study, Manuscript II, entitled “Interpersonal Predictors of Suicide Ideation and Attempt among 11th Graders,” is a retrospective, correlational study that uses

logistical binomial analysis. It examines the extent to which the interpersonal constructs of thwarted belongingness and perceived burdensomeness predict adolescent suicidal ideation and attempt in 11th graders. Findings from this study are believed to be important for clinical mental health counselors as they inform dynamic interpersonal interventions in the clinical setting, as well as highlight the uniqueness of this population in comparison to its adult counterparts. The research questions that guided this study were: (a) To what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicidal ideation, and (b) to what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicide attempts for Oregon 11th grade students? We hypothesize that perceived burdensomeness and thwarted belongingness statistically significantly predicted suicidal ideation and suicide attempts in 11th grade students.

The dataset from the 2017 Oregon Health Teen survey consists of 10,131 of 11th grade students, self-reporting as 0.2% 15-years-old, 35.9% 16-years-old, 62.2% 17-years-old, and 1.8% 18-years-old or older. The participants presented as 48.2% female, 45.9% male, and 5.9% non-binary/GNC, which includes those who identify as transgender, gender non-conforming, genderqueer, gender fluid, intersex/intergender, or something else. Among the 11th grade participants, 85.9% reported they spoke English at home; the racial/ethnic composition was as follows: 62.9% White, 25.0% Hispanic/Latino, 3.6% Asian, 2.2% Black or African American, 5.5% Other, and 0.8% Multiple.

The binomial logistic regression analysis indicated that the ideation model could be classified as medium strong to strong, and the attempt model could be classified as medium to medium-weak. In the ideation model, five of the proxy items proved to significantly predict suicide ideation in this population. The statistically significant items that described perceived

burdensomeness were poor emotional/mental health, poor sense of agency, and feeling sad/hopeless; the insignificant item was low perceived self-efficacy. The statistically significant items that described thwarted belongingness were being not straight and having a disability; the insignificant items were being non-binary, volunteering, and total school days missed. The exact same drivers proved to be significant in the attempt model: poor emotional/mental health, poor sense of agency, feeling sad/hopeless, being not straight, and having a disability.

The researchers were surprised by the results that ideation and attempt had the same drivers. Not all 11th grade students experiencing suicide ideation take action on a suicide attempt, suggesting that there are other drivers at play. This follows the Interpersonal Theory of Suicide, highlighting the need for Acquired Capability for ideation to evolve into attempt, but the researchers wonder what other interpersonal needs may serve as drivers from ideation to attempt. Details of the study and its findings are found in Chapter 3.

In Chapter 4, findings in the two studies are discussed further. The chapter focuses on interpreting the results from both studies in relation to the other and discusses the practical implications for the future, including potential avenues for further research. It will also discuss limitations to the studies.

Summary

It is clear that adolescent suicidality deserves evidence-based practice in preventative and responsive efforts. This dissertation topic was chosen in order to contribute to the current discourse in the fields of school counseling and clinical mental health counseling, as well as to provide evidence to support the application of the Interpersonal Theory of Suicide to adolescents engaging in suicidal ideation and behavior. Each of these studies provides meaningful

contributions to the professions of school counseling and clinical mental health counseling, filling gaps in current empirical literature.

Glossary of Terms

Suicide ideation – Thought of self-inflicted violence with the intent to die, without actual attempt (Stone et al., 2017)

Suicidal behaviors – Ideation or attempt of self-directed potential injury with any intent to die as a result (Stone et al., 2017)

Interpersonal factors – Influences on a person from his or her environment; systemic influencers; between, not within oneself

Perceived burdensomeness – Dynamic, interpersonal state of hopelessness and the misperception of being a burden; self-hatred.

Thwarted belongingness – Dynamic, interpersonal state of loneliness and lack of reciprocally positive relationships; social disconnection.

Acquired capability – Fearlessness (or lowered fear) of death, in conjunction with elevated/increased physical pain tolerance.

School counseling – Defined as the profession of school counseling; composed of individuals who hold the appropriate state licensure/credential (ASCA, n.d.)

Student Mindsets and Behaviors – Knowledge, skills, and attitudes students need to achieve academic, college/career, and social/emotional development and success (ASCA, 2014)

Clinical Mental Health Counseling (CMHC) – Defined as the profession of mental health counseling; comprised as individuals who hold the appropriate state licensure/credential (AMHCA, 2017)

Chapter 2

Interpersonal Predictors of Suicide Ideation and Attempt among 8th Graders

Emily Sallee

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Abstract

Converse to the growing epidemic of suicidal ideation and attempt in adolescents, there is a lack of empirical research to shed light on these issues in this population that is grounded on the theory that school counselors and educational stakeholders can use to inform preventative and responsive practices. This study utilized Joiner's Interpersonal Theory of Suicide (IPTs) to examine the extent to which the interpersonal constructs of perceived burdensomeness and thwarted belongingness to predict adolescent suicidal ideation and attempt by conducting binomial logistic regressions on archival data from the 2017 8th grade Oregon Health Teen Survey ($N=11,505$). Findings indicate that the ideation and attempt models could be classified as medium strong, with the ideation model being the stronger of the two. Seven of the eleven selected proxy items were statistically significant in each model, with slight variance between the two. These findings suggest that the interpersonal constructs of the IPTs may be used in considering prevention and intervention efforts with this population.

Keywords: adolescents, suicidal ideation, suicide behavior, suicidality, Interpersonal Theory of Suicide, Oregon Healthy Teen survey

Suicide is highly prevalent. Nationally, suicide rates increased 28% from 2000 to 2015, when 44,193 people died by suicide, equating to about one death every 12 minutes (Stone et al., 2017). Yet, statistics on death by suicide do not reflect the greater number of people hospitalized and an even greater number treated in ambulatory settings or not treated at all after a nonfatal attempt (Stone et al., 2017). Specific to the state of Oregon, the *Youth Suicide Annual Report* (2017) estimates more than 500 youth ages 10-24 are hospitalized for self-harm, including suicide attempt, each year. In 2014 alone, there were 566 youth hospitalizations, suggesting that there were many more Oregonian youth who attempted suicide and were not hospitalized and an even greater number who had seriously considered suicide (Stone et al., 2017). Given the severity of suicidal behaviors in adolescents and the fact that most adolescents go to schools, understandably, schools are needed to play a critical role in any systemic preventative efforts in addressing this public health concern (Wasserman et al., 2015).

Schools serve students from ages 5 to 18. The setting offers opportunities for comprehensive prevention and response to mitigate youth suicide risk. Gould et al. (2003) note that adolescence is an important context for suicide research, as it is the typical period of onset of suicidal phenomena. Systemically, “suicide in a school community is tremendously devastating, often unexpected, and leaves the school and surrounding community with much confusion and many questions” (Johnson & Parsons, 2012, p. 313). It is crucial that school staff be prepared to prevent and respond to suicidal ideation and behavior of students. Having a theoretical understanding of suicide risk factors will facilitate and guide suicide prevention efforts. The Interpersonal Theory of Suicide (IPTs; Joiner et al., 2009) offers a framework to understand both the risk and protective factors of suicide. Despite its development and use being limited to adult populations thus far, the IPTs has the potential to inform and guide schools in preventive and

intervention efforts. The present study uses the IPTS as a framework to examine the interpersonal predictors of suicidal ideation and attempt among 8th graders in Oregon.

While discussions on suicidal behavior often include non-suicidal self-injury (NSSI), conceptually they are quite different. NSSI refers to self-injurious behaviors without the intent of death. A suicide attempt may or may not result in death or other injuries, but the intent of suicidal self-directed violence is death. For the purposes of the current study, NSSI ideation and/or behavior were not examined.

Adolescents and Suicidality

Adolescence is a time of immense biological and neurological growth and change. In addition to the hormonal changes involved in puberty, evidence on adolescent brain development suggests that the prefrontal cortex, the area of the brain responsible for decision-making, is not fully developed until well into early adulthood (Bridge, 2012). Bridge (2012) suggests “a clear relationship between impaired decision-making and attempted suicide among adolescents... The converging evidence... supports a strong link between impaired decision-making and attempted suicide in adolescents that is distinct from impulsivity and hostility” (p. 7). Impaired decision-making in adolescence characterizes a clear risk factor for suicide ideation and behavior. This developmental period is also responsible for half of all emotional and behavioral disorder diagnoses and the age period of the highest rates of suicide, with subsequent higher risks for suicidal behavior throughout the lifespan (Wyman, 2014). Best practices for addressing suicide in the adolescent population are both preventative and responsive in scope and practice.

Eighth grade students are typically 13- or 14-years of age and are characterized as being in the developmental period known as “early adolescence.” Both males and females experience the beginning stages of puberty (at varying degrees), significant physical growth, and increased

sexual interest. Cognitively, abstract thought is limited, but intellectual interests expand and become more important, and adolescents are developing deeper moral thinking capacities. During this developmental stage, adolescents are tasked with adjusting to their new physical sense of self and a sexually maturing body and feelings, defining a personal sense of identity and adopting a personal value system, renegotiating relationships with parents and caregivers, and developing stable and productive peer relationships (Teipel, 2013).

In relation to this particular study, it is important to note that adolescents in 8th grade worry about being “normal” and look to peers as the standard for what normal looks like. Their physical bodies are experiencing rapid, profound changes triggered by hormones; and this combination results in a social-emotional person struggling with a sense of identity, feeling awkward about one’s self and one’s body, and experiencing increased influence of the peer group (American Academy of Child and Adolescents, 2008). Self-comparison to peers extends into the emergence of romantic and sexually-oriented relationships, and the fear of rejection causes adolescents to explore issues such as Who am I? How do I fit in? Am I loveable and loving? How am I confident? (Teipel, 2013)

Specific, applicable risk factors to the school environment include suicidal behavior by friends, poor peer relationships, hopelessness, antisocial behavior, low self-esteem (Evans et al., 2004), restricted educational achievement, social contagion (Hawton et al., 2012), victimization and perpetration, high conflict relationships, sense of isolation and lack of support, inadequate community connectedness, and stigma associated with help-seeking and mental illness (Stone et al., 2017). Conversely, applicable protective factors include effective coping and problem-solving skills, strong and supportive relationships with partners and friends, and connectedness

to school (Stone et al., 2017). By understanding and targeting these risk and protective factors, school communities have the potential to mitigate suicidal ideation and behavior in students.

The programs available for implementation in schools to reduce adolescent suicidal ideation and behavior follow the paradigm that “interpersonal problems [are] found to be a precipitating factor in both child and early adolescent suicide, and targeting interpersonal problem-solving skill development and building emotional and interpersonal skills...may be upstream prevention approaches with strong potential to reduce youth suicide rates” (Sheftall et al., 2016, p. 1). Research on prevention programs based on such approaches showed success in improving emotional and interpersonal skills (PATHS), reducing impulsive and inattentive behaviors (Good Behavior Game), and decreasing suicide attempts (PATHS, SOS, and YAM) (Sheftall et al., 2016; Wasserman et al., 2015). This data highlights the applicability of the IPTS framework in conceptualizing and addressing suicidal ideation and behavior among students in schools.

Framework Rationale

This study was guided by several gaps in the literature examining the IPTS in adolescents. The IPTS was constructed by studying adult populations and has since been largely examined in adult and college student samples (e.g., Joiner et al., 2009; Monteith et al., 2013). The lack of research evidence in the application of IPTS to adolescents may suggest that the theory may not pertain to the adolescent population; but it has been argued that “although the developmental context is different, the central constructs are also relevant in adolescence, albeit they manifest via slightly different pathways” (Horton et al., 2015, p. 1134). Additionally, adolescence is a developmental period of time when children may begin to engage in health-risk behaviors. They are particularly prone to impulsivity, due to the immature nature of their

prefrontal cortex, and “the increased risk of peers on behavior ... and a sense of invulnerability to known risk consequences may further increase the likelihood of exposure to painful and provocative events” (p. 1135), all contributing to potential sources of acquired capability in adolescents. Additionally, there is little research available in research journals that addresses similar topics in schools while most has limited to non-school-related research journals.

Despite the lack of applicable research, we selected the IPTS as the theoretical framework to guide our study due to its focus on the dynamic factors of *perceived burdensomeness* and *thwarted belongingness* that we believe are applicable constructs among adolescents. We further hope that targeting these interpersonal needs in the school setting will provide information useful to the development of theory- and evidence-based practices in prevention and intervention of adolescent suicide ideation and behavior.

The Interpersonal Theory of Suicide

The IPTS suggests that suicidal behavior is correlated with feelings of thwarted belongingness and perceived burdensomeness, and suicidal behavior results when these negative cognitions are joined by *acquired capability* (King et al., 2018). Thwarted belongingness describes the interpersonal state of loneliness and lack of reciprocally positive relationships. It is a dynamic condition of social disconnection in which the psychological need to belong is not met. Low *perceived quality of family and peer connectedness and belonging* contributes to the dynamic interpersonal state of thwarted belongingness. Perceived burdensomeness describes the misperceptions of being a burden on family and intimate peers. It is characterized by self-hatred and the belief that one is a liability for others, to the point that family and intimate peers would be better off without them. Like thwarted belongingness, this dynamic interpersonal construct responds to both interpersonal and intrapersonal intervention.

Acquired capability describes fearlessness (or lowered fear) about death and an elevated/increased physical pain tolerance. This static construct is developed via repeated exposure to painful and provocative events (Chu et al., 2016; Joiner et al., 2012; Stewart et al., 2017). The key components of this construct are pain tolerance in conjunction with fearlessness about death. The components are also significant in understanding why certain mental health disorders are risk factors for suicidal ideation and behavior, particularly those, like anorexia nervosa, that are demonstrative of increased pain tolerance and fearlessness about death. Without acquired capability, there is no suicidal behavior; without thwarted belongingness and/or perceived burdensomeness, there is no suicidal ideation.

Horton et al. (2015) propose that several studies have isolated the IPTS variables and shown that effects from other known risk factors for suicidal behavior become insignificant. Researchers such as Jahn et al. (2011) demonstrate that perceived burdensomeness mediates the relationship between suicidal ideation and depressive symptoms, and similar work done by Kleiman et al. (2014) suggests that thwarted belongingness and perceived burdensomeness mediates the relationship between suicidal ideation and negative cognitive patterns (including hopelessness). Cero et al. (2015) re-examined the IPTS in both undergraduate and adult inpatient populations and found linear relationships between both interpersonal constructs (perceived burdensomeness and thwarted belongingness) and suicidal ideation. While research in adult populations supported the IPTS, we did not find research using this framework to examine suicide and related topics among adolescents in school settings. Previous studies that utilized the theory in application to suicidal adolescents have only addressed inpatient populations (e.g., Czyz et al., 2014).

Purpose of the Study

The focus of this study was to examine the extent to which the interpersonal constructs of thwarted belongingness and perceived burdensomeness predict adolescent suicidal ideation and attempt among 8th graders based on data collected by the Oregon Healthy Teen Survey (2017). The researchers believe that the present study is significant in several ways. First, as adolescent suicidal ideation and behavior are increasing in frequency, there is a need for a systemic approach in addressing this public health issue, and the school environment lends itself as the prime venue for intervention. School staff are often the first to notice behavior changes in students, and they offer a safe and stable environment for students and substantial interaction to develop significant, supportive relationships with school staff members. Second, the focus of our study is on interpersonal factors that are dynamic, rather than static risk factors that are not necessarily venues for intervention and change by a school (e.g., family factors). Third, findings in the current study may also provide practicing school counselors with evidence to review their work activities as well as advocate for evidence-based program elements in their comprehensive school counseling programs and suicide response protocols. Lastly, our findings may serve to provide information to the profession and its advocates, such as the American School Counselor Association (ASCA), to assist them in their advocacy efforts and recommendations for student mindsets and behaviors.

Given the aforementioned needs and gaps in the literature, based on the interpersonal components of the IPTS, the research questions that guided the current study were: (a) To what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicidal ideation, and (b) to what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicide attempts for Oregon 8th grade students? We hypothesized that

perceived burdensomeness and thwarted belongingness would statistically significantly predict suicidal ideation as well as suicide attempts in these students.

Method

Design and Procedures

This study was a retrospective study that used archival survey data collected in the 2017 Oregon Healthy Teen Survey to conduct a secondary analysis. The 2017 OHT study design utilized a probability design and a randomization process intended to minimize possible selection biases and minimize sampling error with stratification of school regions. The survey was administered during one designated school period, and school officials followed standardized procedures in the administration of the survey to protect student privacy and facilitate anonymous participation, with classroom teachers trained in advance on survey protocols. The randomized weighted sample of 8th graders completing the 2017 OHT survey consisted of 14,852 students, representing a school response rate of 83% (R. Boyd, personal communication, February 22, 2019). The 2017 dataset was available to external users in June 2018.

Dataset

The Oregon Healthy Teen (OHT; Appendix A) survey was derived from the Youth Risk Behavior Survey (YRBS), a biennial national survey, developed by the Centers for Disease Control and Prevention (CDC). The 2017 OHT survey was administered to volunteering 8th and 11th grade students. The OHT survey explores suicidal ideation and attempt, as well as survey items suitable for proxy descriptors of the IPTS constructs, which made the 2017 OHT data set suitable for this study.

In this study, the dynamic interpersonal constructs of IPTS, perceived burdensomeness (PV1) and thwarted belongingness (PV2), serve as the two predictor variables for the two

outcomes variables of suicidal ideation (OV1) and suicide behavior/attempt (OV2). The third construct of the theory, acquired capability, was not selected as a predictor variable due to its static nature and ineffective response to intervention (King et al., 2017). The two predictor variables were measured with proxy items from the Oregon Health Teen Survey (ODE, 2017), substantiated with research to justify selection. The first predictor variable (PV1), perceived burdensomeness, was measured with the proxy survey items of Emotional/Mental Health, Sense of Agency (inverse), Grades, Unsafe Feelings, and Sad/Hopeless Feelings. The second predictor variable (PV2), thwarted belongingness, was measured with the proxy survey items of Sexual Orientation, Sexual Identity, Caring Adult, Absenteeism, Disability, and Bullying. Both outcome variables (OV1: suicidal ideation, and OV2: suicide behavior/attempt) were direct questions in the survey.

Participants

A randomized weighted sample of 14,852 of 8th grade (typically ages 13-14) students was selected from more than 28,000 who participated in the 2017 Oregon Healthy Teen survey. This sample represents a school response rate of 83% (R. Boyd, personal communication, February 22, 2019). At the time of survey administration, 0.2% students self-reported as 12-years-old or younger, 37.0% 13-years-old, 60.9% 14-years-old, and 1.9% 15-years-old. The 2017 survey expanded the gender question to include multiple options for participants identifying as neither exclusively male or female, though data indicated there was 47.6% female, 47.2% male, and 5.2% non-binary/GNC, which included those who identified as transgender, gender non-conforming, genderqueer, gender fluid, intersex/intergender, or something else. Among 8th grade participants, 83.9% reported they spoke English at home. The racial/ethnic composition

was as follows: 59.2% White, 25.6% Hispanic/Latino, 3.9% Asian, 2.3% Black or African American, 8.2% Other, and 0.8% Multiple.

Analysis of the OHT data set, with a single stage cluster design, required the use of statistical software capable of handling complex survey data. School districts were randomly sampled from within each of four regions with small numbers at the county level (North Coast, Willamette Valley, Southwest, Central and Eastern) and six counties (Clackamas, Deschutes, Jackson, Lane, Multnomah, Washington) for the single stage cluster design. We used SPSS statistical software (version 19) for all data management processes and interactive statistical analyses. Recoding steps used to facilitate analysis with SPSS are detailed below.

Measures

The CDC has analyzed the self-reported behavior in the survey using existing empirical literature to assess cognitive and situational factors that might affect the validity of adolescent self-reporting of behaviors measured by the YRBS questionnaire and determined that, although self-reports of these types of behaviors are affected by both cognitive and situational factors, these factors do not threaten the validity of self-reports of each type of behavior equally (Brenner et al., 2013).

In this study, the dynamic interpersonal constructs of IPTS, perceived burdensomeness (PV1) and thwarted belongingness (PV2), served as the two predictor variables, measuring the two outcomes variables of suicidal ideation (OV1) and suicide behavior/attempt (OV2). The third construct of the theory, acquired capability, has not been selected as a predictor variable due to its static nature and ineffective response to intervention. The two predictor variables will be measured with proxy items from the Oregon Healthy Teen Survey (ODE, 2017), substantiated with research to justify selection. The first predictor variable (PV1), perceived burdensomeness,

is measured with the proxy five survey items: *Emotional/Mental Health*, *Sense of Agency (inverse)*, *Perceived Self-Efficacy (inverse)*, *Grades*, *Unsafe Feelings*, and *Sad/Hopeless Feelings*; the second predictor variable (PV2), thwarted belongingness, is measured with the proxy five survey items: *Sexual Orientation*, *Sexual Identity*, *Caring Adult*, *Absenteeism*, and *Bullying*. The proxy items for each predictor variable were chosen based on the literature review. Both outcome variables (OV1: suicidal ideation, and OV2: suicide behavior/attempt) are direct questions in the survey.

Six questions on the survey addressed the predictor variable of perceived burdensomeness. The following table presents these questions and their respective scales:

Table 1

Perceived Burdensomeness

Survey Question	Scaled Response
Would you say that in general your emotional and mental health is...	1 = Excellent, 5 = Poor
I can work out my problems.	1 = Very Much True, 4 = Not at All True
I can do most things if I try.	1 = Very Much True, 4 = Not at All True
During the past 12 months, how would you describe your grades in school?	1 = Mostly As, 5 = Mostly Fs, 6 = None of These, 7 = Unsure (6s and 7s will be replaced with the mean value of the valid 1-5 responses)
During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?	1 = 0 Days, 5 = 6 or More Days
During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?	1 = Yes, 2 = No (will be recoded so 2 = 0)

Emotional/mental health was chosen as the first proxy item for the first predictor variable of perceived burdensomeness due to the research connecting child maltreatment to delayed socio-emotional development and its connection to suicidal ideation (Miller et al., 2014); in general, lower levels of perceived emotional/mental health may lead to feelings of being a burden on family and friends. Sense of agency (autonomy, problem-solving) was chosen, since “decision-making deficits have been shown to increase vulnerability to suicidal behavior in adolescents” (Sheftall et al., 2015, p. 928), and consequences of risk-taking/impulsive behaviors may lend to feelings of burdensomeness. Perceived self-efficacy (belief in one’s ability) was chosen, because a positive perception of one’s competence and worth creates a sense of self-acceptance, self-respect, and self-satisfaction, which serve as protective factors against suicide ideation and perceived burdensomeness (Sharaf, 2009).

Academic problems have been shown to be a risk factor for suicidality in adolescents, but also because low grades, as a sign of academic problems and lack of progress, may also lead a student to feel like a burden on parents and adults at school (Sharaf, 2009). Feeling unsafe, and avoiding school, may serve as a source of feeling like a burden on loved ones, not to mention that “being the victim/target of physical bullying and violence has been linked to adolescent suicide risk... Even witnessing or being threatened with such violence is related to high suicide risk” (Crepeau-Hobson & Leech, 2016, p. 404). The last proxy item of sad/hopeless feelings was chosen due to its direct connection to risk-factors for suicide ideation. According to Horton et al. (2015), they are particularly important to include in conversations about the IPTS due to its inclusion in the definition of the construct of perceived burdensomeness.

Five items were also used to address the predictor variable of thwarted belongingness. The following table presents these questions and their respective scales:

Table 2

Thwarted Belongingness

Survey Question	Scaled Response
Do you think of yourself as...	1 = Straight, 2 = Not Straight (will be recoded so 1 = 0 and 2 = 1)
How do you identify?	1 = Male, 2 = Female, 3 = Non-Binary (will be dummy coded so 3 = 1 and 1 and 2 = 0)
There is at least one teacher or other adult in my school that really cares about me.	1 = Very Much True, 4 = Not at All True
During the past 12 months, how many days of school did you miss for any reason?	1 = None, 6 = 16 or More
Bullied at school in last 30 days?	1 = Yes, 2 = No (will be recoded so 2 = 0)

Sexual orientation and sexual identity were chosen as proxy items for the variable of thwarted belongingness, because research suggests that students identifying as non-heterosexual are at a greater risk of victimization than their heterosexual peers (Kosciw et al., 2010), and the lifetime rate of suicide attempt of non-cisgender youth is 20-40%, approximately 2-6 times that of their cisgender peers (Zhao et al., 2010). Caring adult (at school) was chosen, because a positive relationship with a caring adult (teacher or other) in the school environment may serve as a protective factor against thwarted belongingness by increasing a person's perception of belonging and value. Absenteeism was selected, due to the sense of isolation and lack of belonging in a peer group when a student is not consistently attending school. The final proxy item for thwarted belongingness was being bullied, chosen due to the vast research supporting its impact on suicidal behavior and its association with low self-esteem, anxiety, and depression (Litwiller, 2013).

Data Analysis

This research addresses what the roles of the predictor variables of perceived burdensomeness and thwarted belongingness have on the outcome variables of suicidal ideation and suicide attempt. Since the survey questions and subsequent answer options used as proxy items for the predictor variables ranged from a binary choice to a 7-point Likert scale, we decided to enter each item individually in order to consider whether or not different conceptualizations of the predictor variables best predicted the two outcome variables.

The two outcome variables were surveyed as follows: Suicide Ideation (a) “During the past 12 months, did you ever seriously consider attempting suicide?”, and (b) “During the past 12 months, how many times did you actually attempt suicide?” The second question was recoded so any response of 1 or more will equal 1 and 0 will equal 0, allowing both questions to be assessed on a binary scale (no/yes), with no equaling 0 and yes equaling 1.

Since the outcome variables were measured with a binary scale, we used the binomial logistic regression statistical test to examine the research questions. All 10 predictor variables were analyzed separately to attend to each outcome variable, allowing us to consider how they related to each one. This test has five inherent assumptions associated with it. Four of the five assumptions were already satisfied; the fifth assumption was tested prior to running the analysis.

The four assumptions are as follows:

1. The dependent variable is measured on a binary scale (assumption satisfied).
2. At least one independent variable is present; independent variables can be continuous or categorical (assumption satisfied).
3. Observations are independent of one another (assumption satisfied).
4. The dependent variable should have mutually exclusive categories (assumption satisfied).

5. There must be a linear relationship between the independent and dependent variables; they must not be too highly correlated with each other (assumption to be tested).

Prior to the regression procedure being conducted, the fifth assumption was tested with a Box-Tidwell test for linearity. If the output suggested multicollinearity of a variable, it might require a transformation (square root, Log 10, etc.). If the transformed variable still did not meet the linearity assumption, then it would not be included in the final model.

In sum, the data analysis consisted of descriptive statistics of the survey data, variables created based on the survey items, and logistic regression assumptions tested. Finally, two logistic regression models were completed to determine the relationship between the predictor variables and the two outcome variables – suicide ideation and suicide attempt.

Descriptive Statistics

The following table presents the descriptive statistics of the sample. While 14,817 8th grade students completed the 2017 OHT survey, data from only 11,505 students were included in the analysis due to recoding and data collection errors on the others. Therefore, the descriptive statistics reported in the table reflect the data of the 11,505 students applicable for use in the logistic regression model of this study.

Table 3

Descriptive Statistics

Variable	Mean or Percent	SD (if applicable)
Emo/Mental Health	2.63	1.19
Work on Problems	1.92	0.81
Can Do Most Things	1.72	0.69
Grades	1.87	0.98
Days Missed Unsafe	1.13	0.50

Felt Hopeless (Yes)	29.2%	N/A
Not Straight	16.5%	N/A
Non-Binary	4.8%	N/A
Caring Teacher	1.92	0.95
Days Missed Total	3.25	1.41
Bullied	31.0%	N/A
Consider Suicide	17.5%	N/A
Attempt Suicide	8.3%	N/A

In the multiple logistic regression analysis, we used a p value threshold of less than 0.01 given the large sample size ($n=11,505$). The next section presents the results of the two regression models.

Results

A binomial logistic regression test was conducted to determine the effects of the individual proxy items measuring the predictor variables of perceived burdensomeness and thwarted belongingness on students experiencing suicide ideation. All 11 items were entered into the model at the same step for the outcome variable of suicide ideation. Data screening led to the elimination of four proxy items as they did not indicate significant results (can do most things, grades, caring teacher, days missed total). Regression results indicate the overall model of seven predictors (emotional/mental health, work on problems, days missed unsafe, felt sad/hopeless, not straight, non-binary, bullied) was statistically reliable in distinguishing between 8th grade students who did not experience suicide ideation and those that did (Nagelkerke $R^2 = .475$; $p < .001$). The suicide ideation model was deemed statistically significant ($X^2(11) = 3893.44$) and correctly classified 87.1% of the rows. Sensitivity was 94.5%, specificity was

52.1%, positive predictive value was 66.9%, negative predictive value was 90.3%, and the Receiving Operating Characteristic (ROC) was 89.2%. Due to the R^2 value over 30% and the fairly similar values for sensitivity and specificity, the researchers believe that the model could be classified as medium strong to strong.

Of the six proxy items for the perceived burdensomeness variable, four proved to be statistically significant: (a) emotional/mental health; (b) work on problems; (c) school days missed because of unsafe feelings; and (d) feeling sad/hopeless for two weeks. Specifically, increased poor emotional/mental health, increased lack of ability to handle problems, and increased school days missed due to unsafe feelings were related to the increased likelihood and occurrence of suicide ideation. Additionally, students who reported feeling sad or hopeless for two or more weeks were over six times more likely than those who did not report feeling sad or hopeless to experience suicide ideation; experiencing sustained sad or hopeless feelings was associated with suicide ideation, as evidenced in related literature (e.g., Horton et al., 2015).

Of the five proxy items for the thwarted belongingness variable, three proved to be statistically significant: (a) not straight; (b) non-binary; and (c) bullied at school. Not straight 8th grade students were 1.43 times more likely than straight students to experience suicide ideation; non-binary 8th grade students were 1.53 times more likely than binary students to experience suicide ideation; and bullied students were 2.27 times more likely as non-bullied students to experience suicide ideation. Table 4 presents the tabulated results of this binary logistic regression model.

Table 4

Logistic Regression Predicting Likelihood of Suicide Ideation

Variable	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	Odds Ratio
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Perceived Burdensomeness						
Emo/Mental Health	0.60	0.34	308.99	1	< .001	1.82
Work Problems	0.20	0.04	21.63	1	< .001	1.22
Can Do	0.04	0.05	0.71	1	.40	1.04
Grades	0.04	0.03	1.72	1	.19	1.04
Unsafe Absence	0.20	0.05	15.57	1	< .001	1.22
Feel Sad	-1.85	.07	678.87	1	< .001	.16
Thwarted Belongingness						
Not Straight	0.36	0.08	21.49	1	< .001	1.43
Non-Binary	0.42	0.13	11.21	1	.001	1.53
Caring Teacher	-.01	0.03	.12	1	.73	.99
Days Missed	0.05	0.02	5.72	1	.02	1.06
Bullied (Y)	-0.82	0.06	163.24	1	< .001	.44
Constant	-0.43	0.23	3.50	1	.06	.65

Similarly, a binomial logistic regression test was conducted to determine the effects of the individual proxy items measuring the predictor variables of perceived burdensomeness and thwarted belongingness on suicide attempt. Again, all 11 items were entered into the model at the same step for the outcome variable of suicide attempt. Data screening led to the elimination of four proxy items as they did not indicate significant results (perceived self-efficacy, not straight, caring teacher, days missed total). Regression results indicate the overall model of seven predictors (emotional/mental health, sense of agency, grades, days missed unsafe, felt

sad/hopeless, non-binary, bullied) was statistically reliable in distinguishing between 8th grade students who did not attempt suicide and those that did (Nagelkerke $R^2 = .399$; $p < .001$). The suicide attempt model was deemed statistically significant ($X^2(11) = 2187.66$) and correctly classified 92.3% of the rows. Sensitivity was 98.9%, specificity was 19.4%, positive predictive value was 60.5%, negative predictive value was 93.2%, and the Receiving Operating Characteristic (ROC) was 89.7%. With an R^2 value over 30% and varying values for sensitivity and specificity, the researchers believe that the model could be classified as medium strong.

Of the six proxy items for the perceived burdensomeness variable, five proved to be statistically significant: (a) emotional/mental health; (b) work on problems; (c) grades; (d) school days missed because of unsafe feelings; and (e) feeling sad/hopeless for two weeks. Specifically, increased poor emotional/mental health, increased lack of ability to handle problems, increased poor grades, and increased school days missed due to unsafe feelings were related to the increased likelihood and occurrences of suicide attempt. Additionally, students who reported feeling sad or hopeless for two or more weeks were over eight times more likely than those who did not report feeling sad or hopeless to attempt suicide; experiencing sustained sad or hopeless feelings was associated with suicide attempt, as evidenced in related literature (e.g., Horton et al., 2015).

Of the five proxy items for the thwarted belongingness variable, two proved to be statistically significant: (a) non-binary and (b) bullied. Non-binary 8th grade students were 1.69 times more likely than binary students to attempt suicide, and bullied students were 2.33 times more likely than non-bullied to students to attempt suicide. Table 5 presents the tabulated results of this binary logistic regression model.

Table 5

Logistic Regression Predicting Likelihood of Suicide Attempt

Variable	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Perceived Burdensomeness						
Emo/Mental Health	0.46	0.05	104.23	1	< .001	1.58
Work Problems	0.21	0.05	16.29	1	< .001	1.23
Can Do	-0.08	0.06	1.96	1	.16	0.92
Grades	0.18	0.04	23.96	1	< .001	1.20
Unsafe Absence	0.32	0.05	39.14	1	< .001	1.38
Feel Sad	-2.10	0.12	328.43	1	< .001	.12
Thwarted Belongingness						
Not Straight	0.22	0.09	5.40	1	.02	1.24
Non-Binary	0.52	0.13	15.27	1	< .001	1.69
Caring Teacher	0.04	0.04	0.83	1	.36	1.04
Days Missed	0.04	0.03	1.97	1	.16	1.04
Bullied (Y)	-0.84	0.08	98.10	1	< .001	0.43
Constant	-1.09	0.30	12.85	1	< .001	0.34

The results of the study show that while there were some similarities between the predictors of suicide ideation and suicide attempt, there were some stark differences as well. For example, being not straight does not fully factor into attempting suicide; however, it is a

predictor of suicide ideation. Similarly, having poor grades does not predict suicide ideation, though it does for attempting suicide.

Discussion

We used the IPTS as a framework and data collected by a state government agency to investigate the associations between interpersonal predictors with student suicide ideation and attempt. Specifically, we studied the extent of specific interpersonal predictors comprising the variables of perceived burdensomeness and thwarted belongingness and their potential effects on suicide ideation and attempt of 8th grade students. We hypothesized that perceived burdensomeness and thwarted belongingness would statistically significantly predict suicidal ideation as well as suicide attempt in this population, and it is not surprising that findings in this study support existing research suggesting the relationship between interpersonal characteristics and suicide behaviors. This study provides new insights into the more specific interpersonal predictors of suicide ideation and attempt in this student population, offering important implications for school counselors, school administrators, and other school stakeholders in preventing and responding to student reports of suicide ideation and attempt, while also contributing valuable data to the existing literature examining adolescent suicide behaviors.

In discussing the results of the study, it is important to first contextualize the descriptive statistics, as we are studying and applying results to adolescent students in Oregon. The dataset reports 17.5% of participants as experiencing suicide ideation, which equates to 2,013 8th grade students. This statistic for suicide ideation is slightly higher than the national reporting value of 17.2% (CDC, 2017). The dataset also reports 8.3% of participants as attempting suicide, which equates to 955 8th grade students. This statistic for suicide attempt is higher than the national reporting value of 7.4% (CDC, 2017). In terms of our dataset, Oregon 8th graders are higher than

expected for suicide ideation and higher than expected for suicide attempt. In context, this data suggests that in 2016-2017, 2,013 8th graders in Oregon experienced suicide ideation and 955 8th graders in Oregon attempted suicide.

This study supported previous findings on the use of the IPTS constructs in practice with suicidal populations (e.g., Czyz et al., 2014; Cero et al., 2015). The findings also validate previously made arguments on the application of the theory to work with adolescents (Horton et al., 2015). These results contribute to the field of school counseling as evidence that there are specific interpersonal factors that are related to suicide ideation and attempt that may be venues for targeted interventions of prevention and intervention efforts. Findings indicate that the interpersonal indicators of poor mental/emotional health, low sense of agency, missing school due to unsafe feelings, feeling sad/hopeless, being not straight, being non-binary, and being bullied are significant predictors of suicide ideation. Many of those same interpersonal indicators of suicide ideation are significant predictors of suicide attempt, including poor mental/emotional health, low sense of agency, missing school due to unsafe feelings, feeling sad/hopeless, being non-binary, and being bullied, with the addition of poor grades. While being not straight was a significant predictor of suicide attempt, it barely missed the $p < .001$ cut-off, with a p -value of .02.

These significant findings specifically support previous research on applicable risk factors to the school environment, including hopelessness, low self-esteem, restricted educational achievement, and victimization (Evans et al., 2004; Hawton et al., 2014; Stone et al., 2017). Relatedly, these previous findings loosely outline this study's predictor variables by highlighting the risk factors of lack of support and stigma associated with help-seeking and mental illness (perceived burdensomeness), and poor peer relationships, antisocial behavior, sense of isolation,

and inadequate community connectedness (thwarted belongingness) (Evans et al., 2004; Stone et al., 2017). Interrelatedly, the significant findings in this study also support previous findings on applicable protective factors, including effective coping and problem-solving skills (Stone et al., 2017). We are encouraged to see validation in previous findings and the potential for these findings to contribute to this field of literature.

These findings are curious in that the predictors of suicide ideation and suicide attempt are so similar. The researchers expected fewer, more targeted predictors of suicide attempt funneled from the predictors of suicide ideation, yet that was not the case for this data set. The interpersonal indicators of both suicide ideation and attempt include poor mental/emotional health, low sense of agency, missing school due to unsafe feelings, feelings sad/hopeless, being non-binary, and being bullied. The two unique indicators were being not straight and having poor grades; being not straight is a predictor of suicide ideation but not suicide attempt, and having poor grades is not a predictor for suicide ideation but is a predictor for suicide attempt. This dissonance may be due in part to the uniqueness of 8th grade students and their developmental period at that time, as early adolescents are developing deeper moral thinking capacities among the tasks of adjusting to new developments in their physical bodies, personal sense of identities and values, and renegotiating relationships with parents and peers. The desire for “normalcy” is a driving force in self-comparison and the fear of rejection (Teipel, 2013). These unique attributes may help explain the common drivers of suicide ideation and attempt, as well as the uncommon drivers of being not straight (suicide ideation) and having poor grades (suicide attempt).

The other examined proxy predictors—perceived self-efficacy, caring teacher, and total school days missed—were not statistically predictive of suicidal behavior. It can be theorized that

perceived self-efficacy may not be a strong driving force during this developmental period when early adolescents are experiencing so much self-comparison to peers. They seek to fit in, instead of stand out, and self-efficacy may not be a driver until later in adolescence (American Academy of Child and Adolescents, 2008). Similarly, adolescents during this time are renegotiating their relationships with parents and caregivers (adults) and seeking deeper relationships with peers, and relatedly, having a caring teacher at school may not be as important as the perception of being part of a peer group at school (Teipel, 2013). In terms of total school days missed, while predicted to be an indicator of thwarted belonging due to the assumption that a student feels more belonging comparatively to how often he/she is at school, the peer group influence may also override this as a driver for belonging, particularly with the influence of technology and social media allowing adolescents to connect and belong to a social group outside of the school environment (American Academy of Child and Adolescents, 2008). Additionally, there may be many other reasons why a student may miss school, such as illness, external family needs, avoidance of academic tasks, etc.

Interpersonal Theory of Suicide

The IPTS framework allowed us to consider specific interpersonal factors that predict suicide ideation and attempt in this particular population of 8th grade students. By selecting proxy items from the 2017 OHT survey to represent each predictive variable of perceived burdensomeness and thwarted belongingness, we were able to consider whether or not the IPTS may be applicable to early adolescents. Based on the results outlined in the previous section and working within the confines of the potential limitations outlined below, we believe that this study provides preliminary data to support the application of the IPTS to this specific population. While not all selected proxy items demonstrated statistically significant associations with the

outcome variables, researchers and practitioners should consider using this framework to identify other indicators of perceived burdensomeness and thwarted belongingness among students in their attempts to address suicide-related issues and mental wellness among them.

Limitations

It is imperative to note that these results are only representative of the 8th grade students who elected to take the Oregon Healthy Teen survey in 2017. Additionally, though similar surveys are administered in states throughout the United States of America, either as a version of the Youth Risk Behavior Survey or as the actual survey itself, Oregon elected to revise the original YRBS and, as such, the results from this study cannot be directly generalized to other states that use a different version of the survey. Additionally, a limitation of the data set is the lack of participation in totality in the state of Oregon. This is a voluntary survey and some districts elected not to participate. Additionally, while 14,817 8th grade students completed the 2017 OHT survey, data from 3,312 students was not used due to recoding and data collection errors. Therefore, this dataset is not truly representative of all Oregon 8th grade students.

Since this study utilized archival data, the researchers had no control over the survey questions and subsequent data available for study. As such, we chose the best-fit proxy items to study the predictor variables of perceived burdensomeness and thwarted belongingness. Future investigations should further explore these interpersonal variables in other, more cohesive ways in order to collect more intentional and targeted data to verify findings in this study and further test the utility of the IPTS in adolescents in school settings. Additionally, this study lacked data targeting the unique stressors experienced by students of color, though 25.6% of the participants were Hispanic/Latino.

Implications

This study has meaningful implications regarding both the theoretical use of the IPTS in working with early adolescents as well as the practical use of targeting specific interpersonal needs in working with this population. The findings suggest that perceived burdensomeness and thwarted belongingness are significant predictors of suicide ideation and attempt in early adolescents. Implications for school stakeholders in particular are in creating school-wide programming to systemically target these needs in all students, as well as utilizing the predictors to both identify and intervene with students who may be experiencing suicide behavior or are at risk of suicide. Parents, adolescents, and suicide prevention advocates can also use these findings to help them understand more about factors associated with suicide and what to target in their attempts to improve mental and relational wellness among adolescents.

An implication for counselor educators in training school counselors is to focus on how these interpersonal needs are put into practice with students both in an advocacy role and in a leadership role in schools. School counselors often drive school-wide programs in their system support work, and this data suggests potential directions for best practices in how to prevent suicide behavior particularly at the middle school level with 8th grade students. Additionally, these findings inform the advocate role of school counselors and may provide data for advocacy efforts for systemic change at the school, district, and state levels.

Implications for future research would be to further examine the application of the IPTS in other student populations. This may include utilizing similar survey data from other states, creating a more targeted survey to focus on identification of pertinent indicators of perceived burdensomeness and thwarted belongingness among adolescents and children across grade levels. This may also include factors that might differentially impact students of color or sexual

minorities. An additional option would be to share this data with the agency responsible for revising the survey questions in the OHT survey, suggesting inclusion of other options that might be clearer indicators of suicidal behaviors. Further implications may also include applying the constructs of the IPTS to other related adolescent behaviors, such as non-suicidal self-injury and school violence.

Conclusion

Likely the first to examine the data collected in Oregon using the IPTS framework, findings in our study appear to strongly support the application of the theory to early adolescents. Notwithstanding its limitations, we believe that our findings should encourage more research using the IPTS to help shed light on suicidality in adolescents. We further believe that our findings bear meaningful implications for school counselors, counselor educators, and other education stakeholders in their efforts to address and mitigate teenage suicidality, a growing public health concern in the country.

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Chapter 3

Interpersonal Predictors of Suicide Ideation and Attempt among 11th Graders

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Abstract

A major health risk impacting adolescents is the increasing rate of suicidal ideation and behavior. Although suicide is the third leading cause of death in adolescents (ages 12-19) and the sixth leading cause of death in children (ages 5-12) in the United States, little is known about the interpersonal protective factors mediating adolescent suicidal ideation and behaviors. To address this gap in the empirical literature, this study examined the application of the Interpersonal Theory of Suicide (IPTs) to the adolescent population. This study analyzed complex survey data using the 2017 Oregon Healthy Teen dataset, which included 10,131 students in 11th grade. Binary logistic regressions were used to examine the extent to which the interpersonal constructs of perceived burdensomeness and thwarted belongingness predicted adolescent suicidal ideation and attempt. Findings indicate that five of the nine selected proxy items were statistically significant in each model, with consistent drivers for each. These findings may have the potential to guide development of appropriate treatment strategies based on the interpersonal constructs of the IPTs for clinical mental health counselors working with this unique population.

Keywords: adolescents, suicide, Interpersonal Theory of Suicide

Suicide is among the leading causes of death worldwide, particularly among adolescents and young adults, spanning across all ages, ethnicities, genders, cultures, and religions. In the United States, suicide rates increased 28% from 2000 to 2015, when 44,193 people died by suicide, equating to about one death every 12 minutes. Each year in the state of Oregon, more than 500 youth ages 10-24 are hospitalized for self-harm, including suicide attempt. In 2014 alone, there were 566 youth hospitalizations, suggesting that there were many more Oregon youth who attempted suicide and were not hospitalized and an even greater number who had seriously considered suicide (Stone et al., 2017).

Unfortunately, studies on suicide, particularly adolescent suicide, are rarely theory driven. This results in a lack of integration between research findings and clinical practice (King et al., 2017). Clinicians working with adolescent populations are in need of research-based practices ready for implementation. Although the Interpersonal Theory of Suicide (IPT; Joiner et al., 2009) was initially developed and since applied to use with adult populations, the IPT has the potential to inform clinicians in preventive and intervention efforts, as it offers a framework to understand both the risk and protective factors of suicide. This study uses the IPT as a framework to examine the interpersonal predictors of suicidal ideation and attempt among 11th graders in Oregon.

This field of research uses terms like *suicidal ideation*, *suicidal behavior*, *suicidology*, *self-harm*, *self-injury*, and *self-inflicted death* to describe the thoughts and behaviors of people killing themselves. The Centers for Disease Control and Prevention (CDC) define it within a broader class of behavior called *self-directed violence* referring to “behaviors directed at oneself that deliberately results in injury or the *potential* for injury...[it] may be *suicidal* or *non-suicidal* in nature” (Stone et al., 2017, p. 7). The intent of suicidal self-directed violence is death, while

the intent of non-suicidal self-directed violence is not. A suicide attempt may or may not result in death or other injuries. Because this study takes a particular interest in adolescent suicide ideation and behavior, its differentiation of lethal intent from non-suicidal self-injury (NSSI) has led the researchers to leave NSSI ideation and/or behavior out of the conversation.

Adolescence marks the developmental period between childhood and adulthood, corresponding to the time from pubertal onset to guardian independence. This period is associated with a period of increased risk-taking behaviors as well as increased emotional reactivity, occurring in the context of developmental changes influenced by external and internal factors that elicit and reinforce behaviors. Cognitively, over the course of adolescence, the brain develops the “ability to control impulses and delay gratification in favor of goal-directed and more optimized outcomes and behaviors” (Jaworska & MacQueen, 2015, p.292). Impaired decision-making in adolescence characterizes a clear risk factor for suicide ideation and behavior, not to mention that this developmental period is also responsible for half of all emotional and behavioral disorder diagnoses and the age period of the highest rates of suicide, with subsequent higher risks for suicidal behavior throughout the lifespan (Wyman, 2014). “Research lends support to the theory that the vast proportion of psychopathological changes has its onset in childhood and adolescents, and therefore young people are an especially important target” (Wasserman et al., 2015, p.1536). The adolescent years themselves prove to be a risk factor for suicidal ideation and behavior.

Students in 11th grade are typically 16- or 17-years of age and are characterized as being in the developmental period known as “middle adolescence.” By this age, puberty is typically completed for both males and females, and adolescents begin setting long-term goals, concurrently becoming more interested in the meaning of life and moral reasoning. They

experience an increased drive for independence and increased self-involvement. During the overall developmental stage of adolescents, youth are tasked with adjusting to their new physical sense of self and a sexually maturing body and feelings, defining a personal sense of identity and adopting a personal value system, renegotiating relationships with parents and caregivers, and developing stable and productive peer relationships (Teipel, 2013).

In relation to this particular study, it is important to note that adolescents in 11th grade experience an increased concern with their appearance and body, incorporating a personal sense of masculinity or femininity into their identities and establishing values and preferences of sexual behavior (Teipel, 2013). This period of self-involvement results in high expectations of self and low self-concept, coinciding with an increased drive for peer acceptance and reliance (American Academy of Child and Adolescents, 2008). Additionally, as the adolescent is tasked with gaining autonomy and independence from the nuclear family, he will likely experience periods of sadness as the psychological loss, not so unlike grief, takes place (Teipel, 2013). Adolescents in the 11th grade school environment are preparing for the final year of high school and potentially secondary education after graduation, creating unique stressors related to increasing autonomy and independence as they approach the formidable ascent into adulthood.

Theories of suicide have evolved over the past seventy years to reflect research and societal influences and implications, and yet they all seem to agree that “perceived disruption of interpersonal relationships may serve as one potential mechanism of the association between child maltreatment and SI” (Miller et al., 2014, p.999). Durkheim and Simpson (1951) suggested that suicide was the result of social causes, like isolation, altruism, and anger/frustration. Behavioral theorists like Lester (1987) believed that suicide was a learned behavior, resulting from adverse childhood experience and psychosocial environmental factors.

Schneidman (1993) thought that suicidal behaviors were motivated by the desire to escape emotional pain caused by the lack of socially supportive and nurturing relationships. Joiner's IPTS focuses on the importance of interpersonal relationships, characterized by the confluence of two negative interpersonal states (Miller et al., 2014).

This study was guided by several gaps in the literature examining the application of the IPTS to adolescent populations. Initially, the IPTS was constructed by Joiner and his colleagues by studying adults engaging in suicidal behaviors, and since its development, the theory has been studied primarily in its application to adult and college student populations (Horton et al., 2015). The lack of research on the theory's application to adolescents may suggest its incompatibility to the uniqueness of adolescent suicidality, but Horton et al. (2015) argued that "although the developmental context is different, the central constructs are also relevant in adolescence, albeit they manifest via slightly different pathways" (p. 1134). Horton proposes that perceived burdensomeness in adolescents may manifest as low academic competency or social disconnection; thwarted belongingness in adolescents may manifest as social isolation from peers or poor family cohesion. Adolescence is also a developmental period of time when children may begin engaging in health-risk behaviors, particularly prone to impulsivity due to the immature nature of their prefrontal cortex, and "the increased risk of peers on behavior...and a sense of invulnerability to known risk consequences may further increase the likelihood of exposure to painful and provocative events" (p. 1135), all contributing to potential sources of acquired capability in adolescents. Though the IPTS lacks research with adolescent populations, its focus on the dynamic constructs of *perceived burdensomeness* and *thwarted belongingness* were attractive in consideration of potential application to preventative and responsive efforts. As such, we chose the IPTS as the theoretical framework to guide our study.

The Interpersonal Theory of Suicide

Joiner et al.'s (2009) IPTS offers a theoretical lens to explain suicidal ideation and behavior. The theory describes two dynamic constructs—*perceived burdensomeness* and *thwarted belongingness*—that are influential in suicidal desire. The dynamicity of the constructs is contributed to the fluctuation over time of interpersonal needs and cognitions. Together, they equate to significant risk for suicidal ideation. The third construct, *acquired capability*, is static and believed to develop in response to exposure to provocative, painful, and/or violent experiences, overpowering the human survival need of self-preservation. Acquired capability, in tandem with thwarted belongingness and perceived burdensomeness, results in a high risk for suicidal behavior/attempt (King et al., 2017).

According to IPTS, the three constructs are proximal to suicidal behavior. Horton et al. (2015) suggests that “an important strength of the theory is that it explains the lower frequency of more severe levels of suicidality (such as suicide attempt) compared to less severe levels (such as passive suicidal ideation)” (p. 1134), because it is the combination of the three constructs that leads to suicidal behavior. The theory also posits that the difference between passive and active suicidal ideation is the difference between the presence of one or both of the dynamic interpersonal states of thwarted belongingness and perceived burdensomeness. In other words, one dynamic interpersonal construct suggests passive ideation, both suggests active ideation, and all three constructs leads to suicidal behavior.

Thwarted belongingness describes the interpersonal state of loneliness and lack of reciprocally positive relationships. It is a dynamic condition of social disconnection in which the psychological need to belong is not met. Of the two dynamic interpersonal constructs within IPTS that respond to both interpersonal and intrapersonal intervention, research suggests that it

may respond quicker and be easier to treat (Chu et al., 2016; Joiner et al., 2012; Stewart et al., 2017). It has been well established that positive and negative effects of close relationships are particularly formative in the adolescent years, and “establishing supportive close friendships while also maintaining strong familial bonds is a difficult developmental task of adolescence” (Miller et al., 2014, p. 1000). Adolescents with histories of abuse or other maltreatment are at particular risk, because it has been shown to “have deleterious effects on adolescent socio-emotional development, including poor cognitive flexibility, fewer emotion regulation skills, less prosocial behavior, and more aggressive behavior” (Miller et al., 2014, p. 1000). Low *perceived* quality of family and peer connectedness and belonging contributes to the dynamic interpersonal state of thwarted belongingness.

Perceived burdensomeness describes the misperceptions of being a burden on family and intimate peers. It is characterized by self-hatred and the belief that one is a liability for others, to the point that family and intimate peers would be better off without them. Like thwarted belongingness, this dynamic interpersonal construct responds to both interpersonal and intrapersonal intervention. However, although perceived burdensomeness responds slower to intervention, it may be a more significant predictor of suicidal ideation and behavior than thwarted belongingness. There is also research that claims that thwarted belonging and perceived burdensomeness are more enmeshed in adolescents, suggesting that only one of the dynamic interpersonal constructs are necessary with acquired capability to lead to suicidal behavior (Chu et al., 2016; Joiners, et al., 2012; Stewart et al., 2017).

Acquired capability is the theory’s static construct, describing fearlessness (or decreased fear) about death and an elevated/increased tolerance of physical pain. It is suggested to be developed through repeated exposure to painful and provocative events (Chu et al., 2016; Joiner

et al., 2012; Stewart et al., 2017). Stewart et al. (2017) characterize it as “the combination of increased pain tolerance and decreased fear of death [that] results in progression from suicide intent to suicidal behavior, culminating in a suicide attempt” (p. 438). This construct’s combination of pain tolerance and fearlessness about death is significant in current conversations around adolescents engaging in violent video games, which would correlate to fearlessness about death but not necessarily pain tolerance. The components are also significant in understanding why certain mental health disorders are risk factors for suicidal ideation and behavior, particularly those (like anorexia nervosa) that are demonstrative of increased pain tolerance and fearlessness about death.

Previous studies that applied the IPTS to suicidal adolescents had only addressed inpatient populations (e.g., Czyz et al., 2015; Horton et al., 2015; Miller et al., 2015). Using this theory to examine suicidal behavior among adolescents in the general population can potentially extend its utility and inform counselors working with adolescents who struggle with suicidal ideation and behavior. It has the potential of suggesting interpersonal foci of counseling interventions and treatment plans in working with adolescents experiencing suicide ideation and behavior, carrying over into collaboration with other professionals in the medical field, educational setting, etc.

Purpose and Hypotheses

Based on IPTS, the focus of this study was to examine the extent to which the interpersonal constructs of perceived burdensomeness and thwarted belongingness predict adolescent suicidal ideation and attempt. The researchers believe that the present study is significant in several ways. First, the IPTS has the potential to inform therapeutic interventions

in the clinical setting, as well as parents and other social institutions in how to best support suicidal youth. Second, the focus of our study is on interpersonal factors that are dynamic, rather than static risk factors that are not necessarily venues for intervention and change (ex. family factors). Third, adolescent clients engaging in suicidal ideation and behaviors require interventions unique from their adult counterparts, and often requiring environmental and familial interventions as well as individual. Lastly our findings may serve to provide information to society and its advocates to assist in advocacy efforts and recommendations for serving adolescent populations within all systems, including political laws and policies addressing adolescent suicide.

In consideration of the aforementioned needs and gaps in this field of study, we formulated a two-part research question based on the study's framework of the IPTS. The research questions were: (a) To what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicidal ideation, and (b) to what extent do feelings of perceived burdensomeness and thwarted belongingness predict suicide attempts for Oregon 11th grade students? We hypothesized that perceived burdensomeness and thwarted belongingness statistically significantly predicted suicidal ideation and suicide attempts in 11th grade students.

Method

Participants and Procedures

The Oregon Healthy Teen (OHT) survey was developed from the Youth Risk Behavior Survey (YRBS), which was initiated by the Centers for Disease Control and Prevention (CDC). The OHT survey and the YRBS are both conducted biennially, and most states in the U.S. utilized either the YRBS or a state-adopted version, similar to the OHT survey (CDC, 2018). Students in the 8th and 11th grades complete the OHT survey on a voluntary basis. For the

purpose of this study, the OHT data set (Appendix A) was deemed suitable for use, based on its inclusion of survey items exploring suicidal ideation and attempt, as well as items suitable for proxy to describe the IPTS constructs of thwarted belonging and perceived burdensomeness.

A randomized weighted sample of 11th graders (typically ages 16-17) consisted of 11,895 students was selected from more than 28,000 who participated in the 2017 Oregon Healthy Teen survey representing a school response rate of 83% (R. Boyd, personal communication, February 22, 2019). At the time of survey administration, 0.2% students self-reported as 15-years-old, 35.9% 16-years-old, 62.2% 17-years-old, and 1.8% 18-years-old or older. In terms of gender identity, students self-identified as 48.2% female, 45.9% male, and 5.9% non-binary/GNC, which includes those who identify as transgender, gender non-conforming, genderqueer, gender fluid, intersex/intergender, or something else. Among the 11th grade participants, 85.9% reported they spoke English at home. The racial/ethnic composition was as follows: 62.9% White, 25.0% Hispanic/Latino, 3.6% Asian, 2.2% Black or African American, 5.5% Other, and 0.8% Multiple.

We used SPSS statistical software (version 19) to analyze the OHT data set, which is capable of handling complex survey data for all data management processes and interactive statistical analyses. The first author obtained a data sharing agreement from the OHA giving the research team permission to use the de-identified data set. Recoding steps used to facilitate analysis with SPSS are detailed below.

Measures

The CDC utilized existing empirical literature to analyze the self-reported behavior in the survey, assessing for cognitive and situational factors that might affect the validity of adolescent self-reporting of behaviors. Through analysis, it was determined that although self-reports are in

fact affected by both cognitive and situational factors, the factors do not threaten the validity of self-reports of each behavior equally (Brenner et al., 2013).

In this study, the dynamic interpersonal constructs of IPTS, perceived burdensomeness (PV1) and thwarted belongingness (PV2), serve as the two predictor variables, measuring the two outcomes variables of suicidal ideation (OV1) and suicide behavior/attempt (OV2). The third construct of the theory, acquired capability, was not selected as a predictor variable due to its static nature and ineffective response to intervention. The two predictor variables will be measured with proxy items in the Oregon Health Teen Survey (ODE, 2017), supported with research to justify their selection. The first PV1 (perceived burdensomeness) was measured with proxy four survey items: *Emotional/Mental Health*, *Sense of Agency (inverse)*, *Perceived Self-Efficacy (inverse)*, and *Sad/Hopeless Feelings*. The second PV2 (thwarted belongingness) was measured with the proxy five survey items: *Sexual Orientation*, *Sexual Identity*, *Volunteering (inverse)*, *Absenteeism*, and *Disability*. The proxy items for each predictor variable were chosen based on empirical research. Both outcome variables (OV1: suicidal ideation, and OV2: suicide behavior/attempt) were direct questions in the survey.

Four questions on the survey address the predictor variable of perceived burdensomeness. Table 6 presents these questions and their respective scales.

Table 6

Perceived Burdensomeness

Survey Question	Scaled Response
Would you say that in general your emotional and mental health is...	1 = Excellent, 5 = Poor
I can work out my problems.	1 = Very Much True, 4 = Not at All True
I can do most things if I try.	1 = Very Much True, 4 = Not at All True

During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities? 1 = Yes, 2 = No (will be recoded so 2 = 0)

Emotional/mental health was chosen as the first proxy item for the PV1 of perceived burdensomeness due to the research connecting mental health challenges to emotional strain in the family setting, suggesting a potential perception of being a burden on loved ones (Miller et al., 2014). Sense of agency (problem-solving) was chosen due to its connection between competence and autonomy, two interrelated developmental tasks of adolescence and protective factors against perceived burdensomeness (Sheftall et al., 2015). Perceived self-efficacy (belief in one's ability) was chosen, because a positive perception of one's competence and worth creates a sense of self-acceptance, self-respect, and self-satisfaction, which serve as protective factors against suicide ideation and perceived burdensomeness (Sharaf, 2009). The last proxy item of sad/hopeless feelings was chosen due to its inclusion in the definition of the perceived burdensomeness and exclusion from many studies of the IPTS (Horton et al., 2015).

Five items were also used to address the predictor variable of thwarted belongingness. Table 7 presents these questions and their respective scales.

Table 7

Thwarted Belongingness

Survey Question	Scaled Response
Do you think of yourself as...	1 = Straight, 2 = Not Straight (will be recoded so 1 = 0 and 2 = 1)
How do you identify?	1 = Male, 2 = Female, 3 = Non-Binary (will be dummy coded so 3 = 1 and 1 and 2 = 0)
I volunteer to help others in my community.	1 = Very Much True, 4 = Not at All True

During the past 12 months, how many days of school did you miss for any reason? 1 = None, 6 = 16 or More

Has a disability 1 = Yes, 2 = No (will be recoded so 2 = 0)

Sexual orientation and sexual identity were chosen as proxy items for the variable of thwarted belongingness, because sexual minority students experience higher rates of bullying and a greater likelihood of suicidal behaviors (Seelman & Walker, 2018). Gay, Lesbian, and Bisexual (GLB) adolescents attempt suicide at two to six times the rate of non-GLB adolescents, suggesting that a sexual minority status is in itself a risk factor for suicidal behaviors, and a child identifying as gay, lesbian, or bisexual and/or non-cisgender youth may experience feelings of thwarted belongingness among a peer group (Zhao et al., 2010). Volunteering (inverse) was chosen due to its suggestion of contributing to society and feeling a sense of belonging and value within the community. Absenteeism was selected as a proxy item for thwarted belongingness, due to the sense of isolation and lack of belonging in a peer group, whether the absenteeism is due to feelings of not belonging or whether feelings of not belonging are due to frequent absences from school. The final proxy item for thwarted belongingness was disability. It was chosen because it serves as an attribute that segregates adolescents from their non-disabled peers, whether visible or invisible, identified as eligible for Special Education services or not.

Data Analysis

This study attempts to identify what the roles of the predictor variables of perceived burdensomeness and thwarted belongingness have on the outcome variables of suicidal ideation (OV1) and suicide attempt (OV2) in this particular adolescent population. The selected proxy items have variable answer options (ranging from binary choice to a 7-point Likert scale), so we will individually enter each proxy item for the predictor variables with the intention of

disaggregating whether or not different combinations of the variables are better predictors of the outcome variables.

The two outcome variables are surveyed as follows: (1) Suicide Ideation = “During the past 12 months, did you ever seriously consider attempting suicide?”, and (2) “During the past 12 months, how many times did you actually attempt suicide?” The second question will be recoded so any response of 1 or more will equal 1 and 0 will equal 0, allowing both questions to be assessed on a binary scale (no/yes), with no equaling 0 and yes equaling 1.

With binary scaled data for the outcome variables, we decided to utilize a binominal logistic regression statistical test to assess the research questions. Additionally, we analyzed each predictor variable separately in order to attend to each outcome variable and consider how the predictor variables relate to each other. Logistic regressions have five inherent assumptions, and all but one has already been satisfied; the final assumption is to be tested prior to data analysis. The four assumptions are as follows:

1. The dependent variable is measured on a binary scale (assumption satisfied).
2. At least one independent variable is present; independent variables can be continuous or categorical (assumption satisfied).
3. Observations are independent of one another (assumption satisfied).
4. The dependent variable should have mutually exclusive categories (assumption satisfied).
5. There must be a linear relationship between the independent and dependent variables; they must not be too highly correlated with each other (assumption to be tested).

The fifth assumption was tested with a Box-Tidwell test for linearity. It might have required a transformation (square root, Log 10, etc.), but the transformed variable still did not meet the linearity assumption and was not included in the final model.

In sum, we examined the descriptive statistics of the survey, created variables based on the selected proxy survey items, and tested the assumptions for utilizing a binomial logistic regression statistical test. Finally, we executed two logistic regression models to determine the relationships between the predictor variables and the two outcome variables – suicide ideation and suicide attempt.

Descriptive Statistics

The following table presents the descriptive statistics of the sample. While 11,868 11th grade students completed the 2017 OHT survey, data from only 10,131 students were included in the analysis due to recoding and data collection errors on the others. Therefore, the descriptive statistics reported in the table reflect the data of the 10,131 students applicable for use in the logistic regression model of this study.

Table 8

Descriptive Statistics

Variable	Mean or Percent	SD (if applicable)
Emo/Mental Health	2.63	1.22
Work on Problems	1.87	0.78
Can Do Most Things	1.64	0.67
Felt Hopeless (Yes)	31.8%	N/A
Not Straight	17.0%	N/A
Non-Binary	5.5%	N/A
Volunteer	2.38	0.99
Days Missed Total	3.70	1.49
Disability (Yes)	31.2%	N/A
Consider Suicide	18.1%	N/A

Attempt Suicide

6.6%

N/A

During the multiple logistic regression analyses, we decided to use a p -value threshold of less than 0.01 given the large sample size ($n = 10,131$). The next section presents the results of the two regression models.

Results

A binomial logistic regression test was conducted to determine the effects of the individual proxy items measuring the predictor variables of perceived burdensomeness and thwarted belongingness on students experiencing suicide ideation. All nine items were entered into the model at the same step for the outcome variable of suicide ideation. Data screening led to the elimination of four proxy items as they did not indicate significant results (can do most things, non-binary, volunteer, days missed total). Regression results indicate the overall model of five predictors (emotional/mental health, work on problems, felt sad/hopeless, not straight, disability) was statistically reliable in distinguishing between 11th grade students who did not experience suicide ideation and those that did (Nagelkerke $R^2 = .424$; $p < .001$). The suicide ideation model was deemed statistically significant ($X^2(11) = 3042.89$) and correctly classified 85.6% of the rows. Sensitivity was 94.8%, specificity was 44%, positive predictive value was 64.9%, negative predictive value was 88.3%, and the Receiving Operating Characteristic (ROC) was 87.2%. Due to R^2 value over 30% and the fairly similar values for sensitivity and specificity, the researchers believe that the model could be classified as medium strong to strong.

Of the four proxy items for the perceived burdensomeness variable, three proved to be statistically significant: (a) emotional/mental health; (b) work on problems; and (c) feeling sad/hopeless for two weeks. Specifically, increased poor emotional/mental health and increased lack of ability to handle problems were related to the increased likelihood and occurrence of

suicide ideation. Additionally, students who reported feeling sad or hopeless for two or more weeks were nearly five times more likely than those who did not report feeling sad or hopeless to experience suicide ideation; therefore, experiencing sustained sad or hopeless feelings was associated with suicide ideation, as evidenced in related literature (e.g., Horton et al., 2015).

Of the five proxy items for the thwarted belongingness variable, two proved to be statistically significant: (a) not straight, and (b) disability. Not straight 11th grade students were 1.95 times more likely than straight students to experience suicide ideation, and disabled students were 1.67 times more likely than non-disabled students to experience suicide ideation. That is, disabled students were more likely to experience suicide ideation. Table 9 presents the tabulated results of this binary logistic regression model.

Table 9

Logistic Regression Predicting Likelihood of Suicide Ideation

Variable	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Perceived Burdensomeness						
Emo/Mental Health	0.65	0.04	304.14	1	< .001	1.92
Work Problems	0.16	0.05	13.21	1	< .001	1.18
Can Do	0.01	0.05	0.02	1	.90	1.01
Feel Sad	-1.55	0.07	466.40	1	< .001	0.21
Thwarted Belongingness						
Not Straight	0.69	0.08	79.05	1	< .001	1.95
Non-Binary	0.10	0.13	0.61	1	.44	1.10
Volunteer	-0.05	0.03	2.11	1	.15	0.95

Days Missed	0.05	0.02	6.50	1	.02	1.06
Disability (No)	-0.52	0.07	57.41	1	< .001	0.60
Constant	-1.20	0.26	21.79	1	< .001	0.30

Similarly, a binomial logistic regression test was conducted to determine the effects of the individual proxy items measuring the predictor variables of perceived burdensomeness and thwarted belongingness on suicide attempt. Again, all nine items were entered into the model at the same step for the outcome variable of suicide attempt. Data screening led to the elimination of four proxy items as they did not indicate significant results (can do most things, non-binary, volunteer, days missed total). Regression results indicate the overall model of five predictors (emotional/mental health, work on problems, felt sad/hopeless, not straight, disability) was statistically reliable in distinguishing between 11th grade students who did not attempt suicide and those that did (Nagelkerke $R^2 = .291$; $p < .001$). The suicide attempt model was deemed statistically significant ($X^2(11) = 1205.65$) and correctly classified 93.4% of the rows. Sensitivity was 100%, specificity was 0.01%, positive predictive value was 100%, negative predictive value was 93.4%, and the Receiving Operating Characteristic (ROC) was 86.2%. With an R^2 value near 30% and the polar opposite values for sensitivity and specificity, the researchers believe that the model could be classified as medium to medium-weak.

Of the four proxy items for the perceived burdensomeness variable, three proved to be statistically significant: (a) emotional/mental health; (b) work on problems; and (c) feeling sad/hopeless for two weeks. Specifically, increased poor emotional/mental health and increased lack of ability to handle problems were related to the increased likelihood and occurrences of suicide attempt. Additionally, students who reported feeling sad or hopeless for two or more

weeks were over five times more likely than those who did not report feeling sad or hopeless to attempt suicide; experiencing sustained sad or hopeless feelings was associated with suicide attempt, as evidenced in related literature (e.g., Horton et al., 2015).

Of the five proxy items for the thwarted belongingness variable, two proved to be statistically significant: (a) not straight and (b) disability. Not straight 11th grade students were 1.68 times more likely than straight students to attempt suicide, and disabled students were over two times more likely than non-disabled students to attempt suicide. Table 10 presents the tabulated results of this binary logistic regression model.

Table 10

Logistic Regression Predicting Likelihood of Suicide Attempt

Variable	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Perceived Burdensomeness						
Emo/Mental Health	0.42	0.06	56.62	1	< .001	1.53
Work Problems	0.23	0.06	14.18	1	< .001	1.25
Can Do	-0.08	0.07	1.50	1	.22	0.92
Feel Sad	-1.66	0.13	176.47	1	< .001	0.19
Thwarted Belongingness						
Not Straight	0.52	0.10	27.70	1	< .001	1.68
Non-Binary	-0.05	0.15	0.10	1	.75	0.95
Volunteer	-0.04	0.05	0.80	1	.37	0.96
Days Missed	0.04	0.03	1.81	1	.18	1.04
Disability	-0.78	0.10	56.99	1	< .001	0.46

(No)

Constant	-1.18	0.38	9.50	1	.01	0.31
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These results indicated that while there were significant similarities between the predictors of suicide ideation and suicide attempt. The proxy items that comprised Perceived Burdensomeness, including: (a) poor emotional health; (b) problems working through adversity; and (c) feeling sad/hopeless, in conjunction with the proxy items that comprised Thwarted Belongingness, including (a) being not straight, and (b) having a disability, all factored into increased likelihood of suicide ideation and suicide attempt. In other words, the drivers of suicide ideation were the exact same drivers of suicide attempt.

Discussion

Although suicide ideation and attempt in adolescent populations is a serious public health concern in the United States, growing in frequency and intensity every year, most research in this body of work has focused primarily on adult populations (Horton et al., 2015; Stone et al., 2017). Limitations in the extant empirical literature include lack of emphasis on theory as well as lack of quantitative research with a large population not in in-patient treatment (Czyz et al., 2015; Horton et al., 2015; Miller et al., 2015). In clinical practice, this challenges mental health practitioners' ability to rely on evidence to serve their clients. In this context, our study is spotlighted by being among the first to utilize a theory of suicidology to examine an adolescent population. By utilizing the IPTS (Joiner et al., 2009) as a framework to guide this study, we were able to study the extent of specific interpersonal predictors comprising the variables of perceived burdensomeness and thwarted belonging and their potential effects on suicide ideation and attempt of 11th grade students.

In discussing the results of the study, it is important to first contextualize the descriptive statistics, as we are studying and applying results to adolescent students in Oregon. The dataset reports 18.1% of participants as experiencing suicide ideation, which equates to 1,834 11th grade students. This statistic for suicide ideation is higher than the national reporting value of 17.2% (CDC, 2017). The dataset also reports 6.6% of participants as attempting suicide, which equates to 669 11th grade students. This statistic for suicide attempt is lower than the national reporting value of 7.4% (CDC, 2017). In terms of our dataset, Oregon 11th graders are higher than expected for suicide ideation and lower than expected for suicide attempt. In context, this data suggests that in 2016-2017, 1,834 11th graders in Oregon experienced suicide ideation and 669 11th graders in Oregon attempted suicide.

Results from our binominal logistic regression analyses uncovered a model that supported our hypothesis that perceived burdensomeness and thwarted belongingness would significantly predict suicide ideation and attempt in 11th grade students. Three of the four proxy variables representing perceived burdensomeness were statistically significant for both suicide ideation and attempt, and two of the five proxy variables representing thwarted belongingness were statistically significant for both suicide ideation and attempt. These findings align with the IPTS, proposing that perceived burdensomeness and thwarted belongingness are not only significant predictors of suicidal behaviors, but moreover the required elements for both ideation and attempt (with the addition of acquired capability for attempt) (Horton et al., 2015; King et al., 2017).

The findings indicate the exact same predictors for both suicide ideation and attempt in the study sample. Of the proxy items for perceived burdensomeness, poor emotional/mental health, poor sense of agency, and feeling sad/hopeless were statistically significant predictors of

suicide ideation and attempt. Of the proxy items for thwarted belongingness, being not straight and having a disability were statistically significant predictors of suicide ideation and attempt. The researchers expected fewer, more targeted predictors of suicide attempt funneled from the predictors of suicide ideation, yet that was not the case for this data set, leaving them to wonder what drives an 11th grade student from ideation to attempt. According to the data, 17.5% of the 11th graders experienced suicide ideation, but only 8.3% reported suicidal attempt, leaving 9.2% of participants reporting ideation who were not driven to suicide attempt. The IPTS would suggest that the missing component was a measure of acquired capability that moves a person from ideation to attempt (Joiner et al., 2009). Experience perceived burdensomeness and thwarted belongingness without acquired capability leads to suicide ideation, but the addition of acquired capability may lead to suicide attempt. This will be discussed further as a limitation of this study.

The other proxy predictors examined—perceived self-efficacy, being non-binary, volunteering, and total school days missed—were not statistically predictive of suicidal behavior. This may be due in part to the developmental tasks and strong influencers characteristic of the period of middle adolescence or the proxy items themselves may not be significant indicators of the predictor variables in the study. If the former provides more insight into their insignificance, it is important to consider the developmental period of self-involvement resulting in high expectations of self in combination with low self-concept, impacting their increased drive for peer acceptance (American Academy of Child and Adolescents, 2008). Eleventh grade students are also preparing for their final year of high school and making plans for what their lives will look like after graduation, requiring a high degree of autonomy and independence. It is interesting to consider the insignificant predictors through this developmental lens. Perhaps

perceived efficacy is not a driver of suicide ideation or attempt because of the middle adolescent tendency toward low self-concept despite high expectations of self (American Academy of Child and Adolescents, 2008). And although 11th grade students are seeking peer acceptance, being non-binary may not be a driver due to their developing autonomy and independence (Teipel, 2013). We wonder how this might relate to research indicating a higher rate of suicide for sexual/gender minorities compared to majority youth, but perhaps disaggregating sexual/gender minority and focusing on non-binary youth in particular may impact that conversation.

Volunteering could prove to be a protective factor, but drive for peer acceptance and reliance on peers may determine whether or not an 11th grader chooses to volunteer, as opposed to self-motivation or fulfillment. Similarly, total school days missed may be more driven by the desire for peer acceptance and reliance rather than a measure of thwarted belonging (American Academy of Child and Adolescents, 2008).

Limitations

Several limitations exist in this study. First and foremost, due to its correlational nature, the researchers are unable to draw any causal conclusions from the results. Relatedly, the results from this study describe 11th grade students in Oregon who elected to take the survey and had a complete data set necessary for analysis and are unable to be generalized to the larger population of adolescents. Additionally, the data was taken retrospectively from a survey managed by a state government agency, hence, the researchers of this study had no input as to the questions included in the 2017 version. It would have been preferable for the researchers to select proxy items based on the IPTS constructs of perceived burdensomeness and thwarted belongingness, not the other way around; as such, the researchers were forced to select best-fit proxy items that may or may not have been most representative of the predictor variables. Because the

researchers relied on the 2017 OHT survey data, the models for examining the IPTS constructs are incomplete. Lastly, there is a lack of data about unique stressors experienced by students of color related to their social locations, particularly valuable since 25% of the participant population was Hispanic/Latino.

Considering the results from this study as well as its limitations previously discussed, there are a variety of avenues with which to do further research on this topic. The first option would be to analyze similar data from another state survey or the national Youth Risk Behavior Survey. This would allow the researchers to compare results with this study in order to offer more supported generalization to the adolescent population. Another option would be to revisit this dataset and theory to consider how the theory might apply to other related adolescent behaviors, such as non-suicidal self-injury and school violence. The researchers could also revisit this study by creating a survey that would more fully target the interpersonal constructs of the IPTS or create a qualitative or mixed-methods study to incorporate additional data sources into the study and analysis. Specific to the results from this study, another avenue for future research may be to examine additional prospective drivers that may predict the evolution from ideation to attempt, since our results presented the exact same predictors for ideation and attempt. Finally, a valuable possibility for future research would be to study factors that might differentially impact students of color and sexual minority adolescents.

Practical Implications

This particular study offers valuable implications in support of the application of the Interpersonal Theory of Suicide in working with middle-adolescents, as well as the practical use of targeting specific interpersonal needs in working with this population. The findings suggest that perceived burdensomeness and thwarted belongingness are significant predictors of suicide

ideation and attempt in adolescents, more in the ideation model than the attempt model.

Implications for clinical mental health counselors support the importance of taking a systemic and unique approach to working with adolescents and their families. Through engaging parents, families, school personnel, in addition to the adolescent clients, clinical mental health counselors can work holistically to prevent and intervene on suicidal behaviors by targeting fulfillment and development of interpersonal needs. Additionally, these findings may have the potential to inform laws and policies through legislative efforts to address adolescent suicide. Clinical mental health counselors have a professional obligation to utilize outcome data to advocate for systemic change to impact clients (Montague, Cassidy, & Liles, 2016). And in this context, they may also draw on these findings to provide information to society and its advocates to assist in advocacy efforts and extend recommendations to professionals working with this population.

Conclusion

The goal of this study was to examine the extent to which the interpersonal constructs of perceived burdensomeness and thwarted belongingness predict adolescent suicide ideation and attempt in 11th grade students. We found that 11th graders were at higher risk for suicide ideation and attempt when characterized by poor emotional/mental health, poor sense of agency, feeling sad/hopeless, being not straight, and having a disability. Our findings provide support for the application of the IPTS to adolescents, particularly in the suicide ideation model. From a prevention perspective, our findings suggest the need for educators and mental health professionals to utilize a theory-based approach to working with adolescent clients experiencing suicide ideation and attempt by targeting the fulfillment and development of specific interpersonal needs. Overall, the findings of our study underscore the uniqueness and

complexity of this developmental period of adolescence and the importance of theory- and research-based practices.

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Chapter 4: General Conclusions

This chapter summarizes the two dissertation research studies that examined the associations among the interpersonal predictors outlined in the Interpersonal Theory of Suicide (ITS; Joiner et al., 2009) and suicide ideation and attempt in two adolescent populations. Specifically, the project was designed to examine the relationships among interpersonal predictors and suicide ideation and attempt in Oregon 8th grade students in the first study and Oregon 11th grade students in the second. The first sample consisted of 11,505 8th grade students attending Oregon public middle schools in Spring of 2017; the second sample consisted of 10,131 11th grade students attending Oregon public high schools in Spring of 2017. Both studies were retrospective, correlational investigations utilizing binomial logistic regression analysis. Table 11 presents side-by-side comparisons of the 2017 OHT data for each proxy item and outcome variables. N/A refers to items that were not used in a particular study.

Table 11

Descriptive Statistics (8th v. 11th grades)

Variable	8 th Grade Mean/Percent	11 th Grade Mean/Percent
Emo/Mental Health	2.63	2.93
Work on Problems	1.92	1.87
Can Do Most Things	1.72	1.64
Grades	1.87	N/A
Days Missed Unsafe	1.13	N/A
Felt Hopeless (Yes)	29.2%	31.8%
Not Straight	16.5%	17.0%
Non-Binary	4.8%	5.5%
Volunteer	N/A	2.38

Caring Teacher	1.92	N/A
Days Missed Total	3.25	3.70
Disability (Yes)	N/A	31.2%
Bullied	31.0%	N/A
Consider Suicide	17.5%	18.1%
Attempt Suicide	8.3%	6.6%

Summary of Manuscript I

The first study was designed to consider the application of the IPTS to suicide ideation and attempt in 8th grade students. The binomial logistic regression analysis showed that the model was able to correctly predict 87.1% of the suicide ideation outcome and 92.3% of the suicide attempt outcome. Results indicated that 8th grade students were at higher risk of suicide ideation when experiencing poor mental/emotional health, poor sense of agency, increased school days missed due to feeling unsafe, feeling sad/hopeless, being not straight, being non-binary, and being bullied. Conversely, results indicated that 8th grade students were at a higher risk of suicide attempt when experiencing poor mental/emotional health, poor sense of agency, poor grades, increased school days missed due to feeling unsafe, feeling sad/hopeless, being non-binary, and being bullied. These findings suggest that there is a high degree of overlap between the significant predictors of both suicide ideation and suicide attempt in 8th grade students.

Findings in this study also indicate that the unique features of the early adolescence developmental period of 8th grade students likely impacts the significant predictors (and non-significant predictors) of suicide ideation and attempt. The tasks of early adolescence suggest that 8th graders are more influenced by peers and fitting in to the desired peer group than by adults, either at home or at school.

The implications of this study are valuable to the profession of school counseling, though limitations to this study do exist. First of all, the correlational nature of the study allows for outcome predictions, but is unable to suggest causation between predictor variables and outcome variables. Second, the dataset for analysis was limited to the voluntary participation of Oregon school districts, and furthermore, while 14,817 8th grade students completed the 2017 OHT survey, data from 3,312 students were not used due to recoding and data collection errors. Third, the researchers were confined to select best-fit proxy items in the survey, knowing that the predictor variables might have been better described or operationalized with other unavailable survey questions.

Summary of Manuscript II

The focus of the second study was to examine the application of the IPTS, created and normed in adult populations, to adolescent populations in schools. The study specifically examined the extent to which the interpersonal constructs of perceived burdensomeness and thwarted belongingness predict adolescent suicide ideation and attempt in 11th grade students.

Binomial logistic regression analysis showed that the model correctly predicted 85.6% of suicide ideation and 85.6% of suicide attempt in 11th grade students. Results indicated that 11th graders were at higher risk for suicide ideation and attempt when characterized by poor emotional/mental health, poor sense of agency, feeling sad/hopeless, being not straight, and having a disability. The researchers found it interesting that both outcomes (ideation and attempt) had the exact same significant predictors, suggesting that there is something else not studied that drove 11th graders from ideation to attempt, particularly considering that the OHT survey reports 18.1% students experienced suicide ideation with only 6.6% students advancing ideation to actual suicide attempt.

Similar to Manuscript I, there were limitations in this study. One limitation was the inability to generalize the results to the larger population of adolescents due to the sample being taken from 11th grade students in Oregon who elected to take the survey and had a complete data set necessary for analysis. Furthermore, this was also a correlational study that does not allow for drawing causal conclusions. Another limitation was related to relying on archival survey data from a survey that is managed by a state government agency, restricting the ability of the researchers of this study to have any input to the questions included in the 2017 version. Lastly, because the researchers relied on the 2017 OHT survey data, the models for examining all the IPTS constructs were incomplete, specially, the construct of acquired capability.

Implications and Recommendations

In reviewing the outcomes of both manuscripts, several limitations seem evident as discussed earlier. However, the findings in both studies in this dissertation support the application of the IPTS to adolescent populations, as well as add to the growing body of knowledge on adolescent suicide behaviors. The findings highlight the importance of considering the unique characteristics of the developmental period of adolescence and their impact on interpersonal predictors of suicide ideation and attempt (Bridge, 2012; Wyman, 2014). These findings also support the role of school counselors to recognize the threat of suicide by identifying behavioral and social/emotional signs and risk factors, as well as raise awareness of suicide, train school stakeholders, and identify applicable resources within the school and surrounding community (ASCA, 2018). Findings further facilitate the role of mental health clinicians who serve adolescents and their families in assessing suicide risk and provide responsive interventions to minimize risk and/or make appropriate referrals for further treatment (Montague, Cassidy, & Liles, 2016).

In terms of practice and training, practicing school counselors and school counselor preparation programs as well as practicing mental health clinicians and mental health counseling preparation programs should focus prevention and intervention efforts on the interpersonal predictors of adolescent suicide ideation and attempt, as practitioners, advocates, and leaders. In schools, this looks like engaging school and community stakeholders in targeting interpersonal needs of students and prioritizing the development of their social/emotional growth to the same extent as their academic growth. It involves advocating for evidence-based suicide prevention programs, as well as suicidality identification and intervention/response procedures. In mental health agencies, this involves taking a systemic approach in working with adolescents who report suicide ideation and/or attempt by engaging their parents and families as well as the adolescent clients to create a holistic treatment plan based on fulfillment of interpersonal needs.

In terms of future research, it would be important to further study the application of the IPTS to adolescent suicide ideation and attempt to verify our findings. Though in both manuscripts specific interpersonal predictors were found to significantly correlate to adolescent suicide and attempt, future research may consider utilizing similar survey data from other states, creating a more targeted survey to focus on the predictors of perceived burdensomeness and thwarted belongingness, and/or studying other ages/grade levels. Relatedly, in comparison to national trends, it appears that Oregon 8th graders are experiencing suicide ideation and attempt at a higher frequency, and Oregon 11th graders are experiencing suicide ideation at higher frequency and suicide attempt at a lower frequency than adolescents across the United States (CDC, 2017). According to Mental Health America (2018), Oregon is at the bottom for mental health resources targeting adolescents, suggesting that Oregon adolescents are underserved in

their mental health needs. Future research may look at similar patterns in the states surrounding Oregon and/or states similar in demographics.

Both manuscripts highlighted the fact that there are correlations between specific interpersonal factors and adolescent suicide ideation and attempt; however, we had to work within the confines of the archival data set. As such, future studies should consider conducting qualitative inquiries on adolescents who have engaged in suicidal behaviors in order to more accurately pinpoint interpersonal factors that may or may not associate with the IPTS as well as giving voice to these individuals whose lived experiences are beyond what any quantitative inquiry can fully capture.

Manuscript I presented some differences in predictors of suicide ideation and attempt, though we thought that suicide attempt might have fewer, overlapping predictors with suicide ideation. It would be important to examine the different drivers of suicide ideation and attempt in this population to find prospective answers as to why suicide ideation and attempt appear to be quite different behaviors rather than related in a funneling pattern. On the other hand, Manuscript II presented the exact same drivers for suicide ideation and attempt, which left us wondering what drives a mid-adolescent from ideation to attempt compared to that in an early adolescent. In this context, it would be important to examine additional prospective drivers that may provide a fuller account of the transition from ideation to attempt and how developmental age serves as a differentiating factor. Related to both questions is the third IPTS construct of acquired capability, lacking in this study and related studies. A future and separate study on acquired capability is needed in order to better understand its role in adolescent suicide behaviors.

Other avenues for future studies include re-visiting the insignificant predictors outlined in both studies. For example, perceived self-efficacy was found to be insignificant in all four

models. Perceived self-efficacy was originally chosen as a proxy item for perceived burdensomeness due to its measurement of positive perception of a person's competence and worth, creating a sense of self-acceptance, self-respect, and self-satisfaction (Sharaf, 2009). The researchers predicted that perceived self-efficacy would serve as a protective factors against suicide ideation and perceived burdensomeness, but the results proved that not to be true. In reflection, perhaps the competency-component of self-efficacy impacted its significant (or rather, insignificance) since very competent, capable people may die by suicide due to reasons unrelated to their self-efficacy. The proxy item describing perception of worth is skewed by the insignificance of competence. Total school days missed was also found to be insignificant in all four models. It was originally chosen as a proxy item for thwarted belongingness due to the sense of isolation and lack of belonging in a peer group when a student is not consistently attending school. Poor school attendance can have many sources, such as illness, family needs, travel, etcetera, and perhaps the proxy item describing attendance is skewed by the dilution of various reasons why a child may be absent. In any case, it is curious that there were consistent insignificant predictors in the studies, suggesting that the proxy items are impacted by a variety of influences.

Further, future studies should also examine how school counselors and mental health clinicians may directly intervene with the interpersonal predictors of suicide ideation and attempt in their adolescent clients. Continuing research in these areas may contribute to the school counseling and clinical mental health counseling professions in general, and adolescents' wellness in particular. The ultimate goal is to serve as sources of direct and indirect support and treatment through education, advocacy, and leadership efforts to create a system where the interpersonal needs of adolescents are met.

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Appendix A

Approval for Research: Manuscript I



Oregon State University
Research Office

Human Research Protection Program
& Institutional Review Board
B308 Kerr Administration Bldg, Corvallis OR 97331
(541) 737-8008
IRB@oregonstate.edu
<http://research.oregonstate.edu/irb>

Date of Notification	June 17, 2019	Study Number	IRB-2019-0213
Notification Type	Oversight Determination		
Principal Investigator	Kok-Mun Ng		
Study Team Members	Cazares-Cervantes, Abraham; Sallee, Emily K		
Study Title	Interpersonal Predictors of Suicide Ideation and Attempt Among 8th Graders		
Funding Source	None	Cayuse Number	N/A

DETERMINATION: RESEARCH, BUT NO HUMAN SUBJECTS

It has been determined that your project, as submitted, does meet the definition of research but **does not** involve human subjects under the regulations set forth by the Department of Health and Human Services 45 CFR 46.

Additional review is not required for this study.

Please do not include HRPP contact information on any of your study materials.

Note that amendments to this project may impact this determination. Please submit a new request if there are changes (e.g., funding, data sources, access to individual identifiers, interaction with research subjects, etc.).

The federal definitions and guidance used to make this determination may be found at the following link: [Human Subject](#)

Appendix B

Approval for Research: Manuscript II



Oregon State University
Research Office

Human Research Protection Program
& Institutional Review Board
B308 Kerr Administration Bldg, Corvallis OR 97331
(541) 737-8008
IRB@oregonstate.edu
<http://research.oregonstate.edu/irb>

Date of Notification	June 17, 2019	Study Number	IRB-2019-0210
Notification Type	Oversight Determination		
Principal Investigator	Kok-Mun Ng		
Study Team Members	Cazares-Cervantes, Abraham; Sallee, Emily K		
Study Title	Interpersonal Predictors of Suicide Ideation and Attempt Among 11th Graders		
Funding Source	None	Cayuse Number	N/A

DETERMINATION: RESEARCH, BUT NO HUMAN SUBJECTS

It has been determined that your project, as submitted, does meet the definition of research but **does not** involve human subjects under the regulations set forth by the Department of Health and Human Services 45 CFR 46.

Additional review is not required for this study.

Please do not include HRPP contact information on any of your study materials.

Note that amendments to this project may impact this determination. Please submit a new request if there are changes (e.g., funding, data sources, access to individual identifiers, interaction with research subjects, etc.).

The federal definitions and guidance used to make this determination may be found at the following link: [Human Subject](#)

Appendix C

OHT Data Request Form

OREGON HEALTHY TEENS (OHT) DATA USE FORM

Instructions: Please complete the form, obtain required signatures, and submit to the attention of the BRFSS and OHT Survey Coordinator to the above address, fax, or email to: renee.k.boyd@state.or.us.

Note: Due to confidentiality, OHT public use datasets exclude identifiers below the county level (district ID and school ID and zip code), as well as height and weight variables (BMI is included). Depending on the request, race variables may also be excluded from the dataset.

CONTACT INFORMATION FOR DATA REQUEST

Contact Name: Emily Sallee
 Email: emily.sallee@gmail.com Telephone: 503-780-6411
 Organization: Oregon State University Is this a government agency? **Yes** No
 Street Address: 10288 SW 71st Avenue
 City: Tigard State: OR Zip Code: 97223

Is this request to:	Yes	No
Add a user for data already received?		X
Receive annual data on a regular basis?		X
Link records to other databases?		X
Receive data tables?	X	

DATASET REQUESTED:

OHT	
2017 OHT	X
2015 OHT	
2013 OHT	
2011 OHT	
2009 OHT	
2008 OHT	
2007 OHT	
2006 OHT	
2005 OHT	
2004 OHT	
2003 OHT	
2002 OHT	
2001 OHT	

FORMAT: What statistical software will you use to analyze the data?
I will use **SPSS Statistics** to analyze the data.

Requestor will be notified of any fees (\$70 an hour; total based on request) that must be paid prior to processing the data request.

DESCRIPTION OF STUDY

Study Start Date: 05/01/2018

Study End Date: TBD

Does your study have IRB approval? Yes ☐ No ☒ If "yes", please attach copy of current IRB approval.

Describe plans for secure data storage, including laptops and other portable devices.

Data will be secured on my personal password protected laptop that is with me at home or at work.

Describe plans to destroy the data after the study ends.

After the study ends, all data will be deleted from my personal computer.

Please provide a description of the study detailing how the data will be used. Attach additional pages if needed.


This data will be used in my dissertation research study to measure the applicability of Joiner's *Interpersonal Theory of Suicide* to the prevention and intervention of adolescent suicidal ideation and behavior in the context of the school environment. I will be using proxy items from the data set to measure two of the theory's primary constructs (and predictors of suicide), *perceived burdensomeness* and *thwarted belonging*, and their relatedness to suicidal ideation and attempt. The implications for this study include applicable information to be used in K-12 Oregon schools in better supporting students by preventing and intervening on suicidal ideation and possible behavior

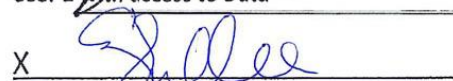
DATA USE CONFIDENTIALITY AGREEMENT

I certify that I have read and agree to abide by the Database Confidentiality Rules on the attached sheet (please sign and date below).

X 	Kok-Man Ng	4/16/2019
Principal Investigator/Manager	Printed Name	Date

X 	Cazares-Corcuates	4-16-19
User 1 with access to Data	Printed Name	Date

X 	J.J. DeSimone	4/17/19
User 2 with access to Data	Printed Name	Date

X 	Emily Gillet	4/17/19
User 3 with access to Data	Printed Name	Date

If user publishes a peer-reviewed manuscript from these data, PHD would appreciate receiving a copy of the abstract prior to publication.

DATABASE CONFIDENTIALITY RULES

Information released for this study is understood to be confidential in accordance with ORS 432.060(1) which states:

“All records of interviews, reports, studies and statement procured by or furnished to the Department of Human Services, any federal health agency or any non-profit health agency that is exempt from taxation under the laws of this state or in connection with special morbidity and mortality studies, are confidential in so far as the identity of an individual patient is concerned. Such records may be used solely for the purpose of the studies.”

As per CONFIDENTIALITY AND PRIVACY TASK FORCE Final Report Issue 01-01-27, 1/1/1999:

“All confidential information should be accessible only on a need-to-know basis, both internally and externally. In some cases, disclosure of identifiable information for research purposes is appropriate. Such disclosure should not harm individuals, should be limited to the information necessary to accomplish the research objectives, and appropriate safeguards for protecting data should be in place (including destruction after use). Individual identifiers should be removed at the earliest possible time and research must have Institutional Review Board (IRB) approval unless exempted by law.”

Researchers (including all those who will use or have access to the requested dataset) who are requesting Program Design and Evaluation Services (PDES) datasets must agree to abide by the rules listed below.

1. Data may be used only for the purposes stated in the attached Data-use Agreement. Any changes in planned use of data must be written as a supplemental request and receive written approval from the Program Design and Evaluation Services, as well as the Oregon DHS-HS IRB where necessary.
2. Because researcher will have access to potentially identifiable individual record information that is confidential, protected by law and Program Design and Evaluation Services rules and policies, researcher must agree to assess the impact on privacy and confidentiality before releasing aggregated data. Identifiable information includes, but is not limited to, demographic identifier information, which will identify or may reasonably lead to the identification of one or more specific individuals. Therefore, outside research or study groups should abide by the same rules of confidentiality in reporting non-identified aggregates at the geographic level, where disclosure of detailed demographic information and medical information would make it

possible to identify the person in local communities. Researchers should abide by the "10 and 50" rule mentioned in Policy 01-01-27 issued on January 1, 1999 by Oregon Department of Human Services, Health Division.

3. Researcher will protect confidentiality by keeping records and materials in a secure location with controlled access so that persons not connected with the study cannot access these records. Control of these records is to continue at the completion of the study by destroying the electronic files or listings.
4. Researcher will not attempt to link individual records from this dataset with other information from any other dataset without specific written permission or approval from the Oregon DHS-HS IRB. Linkage of information from multiple databases is a potential threat to confidentiality.
5. Prohibition against follow-up: The researcher will not perform any individual or family follow-up, and no data will be published or disclosed from which an individual can be identified except where permitted under ORS 432.119(2) or upon written authorization of the Oregon DHS-HS IRB.
6. Researcher will not release any individual record information either *in toto*, or in fragmented form, to any person or entity outside of the research team specifically related to the project described in the Data Use Agreement, without express written permission from Program Design and Evaluation Services
7. Researcher understands that a breach of confidentiality would result in denial of all future dataset requests from Program Design and Evaluation Services, as well as possible civil and/or criminal liability of the researcher. The Oregon Program Design and Evaluation Services has taken reasonable precautions to protect the identities of individual respondents providing information for this dataset. Researchers will accept all liability for their use, disclosure, or revealing in any way of information that can be used to identify any individual person.
8. Researcher will ensure that the dataset is destroyed after the purpose of the written request is fulfilled. Even after researchers no longer have access to the survey data, they should consider themselves bound by this document and must continue to maintain the confidentiality of information to which they previously had access.

