

School engagement and Interpersonal–Psychological Theory of Suicide: Identity groups differences

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The Interpersonal–Psychological Theory of Suicide (IPTS) is a framework for understanding suicidality, yet there is little connection of IPTS to school environment, or exploration of this model within various populations. In this article, we conduct a cross-sectional assessment in a high school to understand the relationships between student engagement, IPTS, and suicidal behavior, to provide guidance for counseling professionals to target prevention and intervention efforts to increase effectiveness. A total of 1081 high school students participated in the current study. While perceived burdensomeness was found to moderate the relationship of some aspects of student engagement to suicidal behavior, nuances existed in risk factors to suicidal behavior for various identity groups within the school. Findings have implications for prevention and intervention efforts that would be most effective for students with diverse backgrounds.

Keywords: Interpersonal–Psychological Theory of Suicide | school counseling | school engagement | suicide prevention

Article:

*****Note: Full text of article below**

SPECIAL ISSUE ARTICLE

School engagement and Interpersonal–Psychological Theory of Suicide: Identity groups differences

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Abstract

The Interpersonal–Psychological Theory of Suicide (IPTs) is a framework for understanding suicidality, yet there is little connection of IPTs to school environment, or exploration of this model within various populations. In this article, we conduct a cross-sectional assessment in a high school to understand the relationships between student engagement, IPTs, and suicidal behavior, to provide guidance for counseling professionals to target prevention and intervention efforts to increase effectiveness. A total of 1081 high school students participated in the current study. While perceived burdensomeness was found to moderate the relationship of some aspects of student engagement to suicidal behavior, nuances existed in risk factors to suicidal behavior for various identity groups within the school. Findings have implications for prevention and intervention efforts that would be most effective for students with diverse backgrounds.

KEYWORDS

Interpersonal–Psychological Theory of Suicide, school counseling, school engagement, suicide prevention

INTRODUCTION

Counseling as a profession was founded on principles of wellness, human development, and prevention. As the field has continued to develop, counselors and counselor educators have integrated social justice and multiculturalism into the core of the counseling field, integrating the needs and contexts of both individuals and the systems they function within. And yet, often counselors are asked to balance these core principles of the profession while addressing the acute needs of their clients. As an example, recent decades have seen an alarming increase in suicidality in youth. Suicidality in adolescents is a longstanding public health issue (Marraccini & Brier, 2017). In the United States, suicide is the second leading cause of death for children aged 10–14 and the third leading cause of death for adolescents aged 15–24 (Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2023). Approximately 40,000 adolescents attempt suicide every year in the United

States (Tomek et al., 2018). However, the prevalence of suicidal behavior differs among youth from various groups. In 2021, suicide rates increased among all racial/ethnic groups, with a 19.2% overall increase for non-Hispanic Black individuals and a 36.6% increase for Black youth between the ages of 10 and 24 years. Sexual and gender minorities have been identified as having higher rates of suicidal ideation and attempts, with rates of suicide attempts more than three times that of their cisgender (Horwitz et al., 2020) or heterosexual peers (Raifman et al., 2020). Females have experienced an increase in both attempts and deaths by suicide, with increases occurring at different rates based on racial/ethnic identities (Ivey-Stephenson et al., 2019). Non-Hispanic White individuals were the only population to show a decline in suicidal behavior since 2018 (Curtin et al., 2021; Stone et al., 2023).

The focus on suicide prevention for adolescents has led to an abundance of knowledge about suicide risk factors, protective factors, and entry points for intervention (Forster

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et al., 2020; Marraccini & Brier, 2017; Tomek et al., 2018). The school environment has emerged as an important arena for both protective factors (e.g., social support) and risk factors related to suicidality in adolescence (Forster et al., 2020; Hatchel et al., 2019; Marraccini & Brier, 2017; Young et al., 2011). And yet, a need for clarity remains around our understanding of adolescent perceptions of social support or engagement from others at school—particularly since perceptions of support are a distinct experience from actual received support (Forster et al., 2020; Hatchel et al., 2019). Given the high prevalence of suicidal behavior among adolescents, and the differences in suicidal behavior noted above among racial/ethnic groups, exploration into student perceived social support and school engagement is needed, specifically focusing on how these factors relate to suicidal behavior among different racial/ethnic groups.

The Interpersonal–Psychological Theory of Suicide

Joiner's Interpersonal–Psychological Theory of Suicide (IPTs) has become a prevailing framework for understanding suicidal ideation and behavior (SIB) since its initial publication in 2005 (Chu et al., 2017; Mills, 2022; Muehlenkamp et al., 2015; Tomek, et al., 2018; Young et al., 2011). IPTs has withstood empirical testing to varying degrees across diverse samples and research designs for over a decade (Chu et al., 2017; Chung et al., 2022; Kang et al., 2018). Through IPTs, suicide risk factors can be conceptualized through three constructs that speak to SIB: perceived burdensomeness, thwarted belongingness, and acquired capability. The constructs of perceived burdensomeness and thwarted belongingness address the desire for suicide or suicidal ideation, while the construct of acquired capability for suicide refers specifically to suicidal behavior (Assavedo & Anestis, 2016; Chu et al., 2017; Kang et al., 2018).

Perceived burdensomeness has been defined as an individual's perception that their existence creates an undue burden on their social support system, resulting in low self-worth and a belief that one's death would be a benefit to others (Calati et al., 2022; Joiner, 2005; Mills, 2022; Tomek et al., 2018; Van Orden et al., 2010; Young et al., 2011). Thwarted belongingness is the perception of having a lack of meaningful relationships, resulting in feelings of isolation, loneliness, and low social connectedness (Hatchel et al., 2019; Joiner, 2005; Kang et al., 2018; Van Orden et al., 2010; Young et al., 2011). Finally, acquired capability for suicide results from habituated behavior or exposure that results in increased fearlessness around death and/or an increase in pain tolerance (Calati et al., 2022; Chu et al., 2017; Chung et al., 2022). Non-suicidal self-injury (NSSI) is one potential behavior that has been found to desensitize or lower one's pain sensitivity and fear of death (Willoughby et al., 2015), and it has been used to assess acquired capability among adolescents (Kang et al., 2018). Taken in tandem, these three constructs form Joiner's IPTs and have been used to explain suicidality in adolescence

and adults (Calati et al., 2022; Chu et al., 2017; Chung et al., 2022), with perceived burdensomeness being a stronger and more consistent predictor of suicidal behavior (Chu et al., 2017). However, as noted by Chu et al. (2017), little research has been conducted that explores IPTs in relation to suicidal behavior among adolescent populations specifically, with only four studies out of 112 having examined youth under 18 years old (3% of studies; Chu et al., 2017).

While the three constructs of IPTs continue to receive empirical support (e.g., Chu et al., 2017; Chung et al., 2022; Kang et al., 2018), it has been questioned whether they fully capture or explain the interactions between suicidal behavior and the experiences of adolescents with marginalized identities based on race/ethnicity, specifically Black youth; LGBTQ identity; and gender (Hatchel et al., 2019; Tomek et al., 2018). Vélez-Grau et al. (2023) supported this idea with a sample of Latine and Black adolescents, finding that dimensions such as lack of authenticity (being true to self) and lack of belonging to family were experiences of thwarted belongingness—aspects not fully discussed in the original definitions of thwarted belongingness or measured by the Interpersonal Needs Questionnaire (INQ). While not specific to IPTs constructs, Meza et al. (2022) pointed out that known risk and protective factors associated with suicide are not inclusive for youth from different racial/ethnic backgrounds, citing the importance of family support or individual social anxiety as important factors. The importance of sensitivity to these unique experiences is reinforced when we consider that differences in charted trajectories of suicidal ideation and attempts have been noted among adolescents of varying racial and ethnic backgrounds (Chung et al., 2022). Therefore, understanding how the three constructs of perceived burdensomeness, thwarted belongingness, and acquired capability relate to suicidal behavior for youth in general and for youth with diverse identities is important.

IPTS and student school engagement

As researchers continue to investigate the applicability of IPTs to various populations, the ways in which its constructs of perceived burdensomeness and thwarted belongingness manifest in adolescents remain of particular interest (Forster et al., 2020; Hatchel et al., 2019; Marraccini & Brier, 2017; Tomek et al., 2018). Support has been found for the notion that adolescents with SIB experience perceived burdensomeness and thwarted belongingness within their given contexts (Hatchel et al., 2019; Tomek et al., 2018). One such context of relevance is that of the school environment (Marraccini & Brier, 2017). Adolescents experiencing peer victimization and social isolation within their school settings report higher levels of SIB than adolescents who feel a sense of belonging and acceptance at school, indicating that school connectedness may act as a protective factor for adolescents against suicidal behavior (Forster et al., 2020; Hatchel et al., 2019; Marraccini & Brier, 2017). Perceived burdensomeness in adolescents seems to have garnered less empirical attention

than thwarted belongingness as some have argued that adolescents having less responsibility than adults may not experience themselves as burdensome (Tomek et al., 2018). However, adolescents living in impoverished neighborhoods were at increased risk for suicidal behavior, suggesting that perceived burdensomeness may be a relevant part of suicidal behavior in adolescents (Tomek et al., 2018). Adolescents have perceived themselves to be burdensome when they felt they were a drain on others' resources (both time and finances), when they perceived themselves as a failure or flawed in some way, during times of relationship conflict, when they were not emotionally regulated and were feeling distress, and when they were stressing over academic problems or bad grades (Hill et al., 2019). Perceived burdensomeness is an important factor in adolescent suicide. Thus, researchers need to explore how students' engagement and perceived support in school impact perceived burdensomeness as well as other risk factors of suicidal behavior from the IPTS.

Given the empirical support of the role of academic variables such as school connectedness in mitigating the risk of suicide in adolescents, questions remain around avenues by which school personnel may approach identification of at-risk students for SIB and ultimately intervene in a timely manner (Armstrong & Manion, 2015; Marraccini & Brier, 2017; Tomek et al., 2018). One possibility may be in the related construct of student engagement (Hatchel et al., 2019). Within the field of education, engagement has been viewed as something of a meta-construct, encompassing multiple branches of research (Appleton et al., 2006). As previously noted, school connectedness is a protective factor against suicide in adolescents. School connectedness, described broadly, consists of interpersonal relationships, relationship to the school, and attitudes toward school importance and inherently shares theoretical components of student engagement that consist of academic, behavioral, cognitive, and psychological aspects of engagement (Hatchel et al., 2019; Lovelace et al., 2014; Marraccini & Brier, 2017; Moreira & Dias, 2019).

While theoretically similar, student engagement is distinct from constructs such as school connectedness and motivation in that it has been described as "energy in action, the connection between person and activity" (Appleton et al., 2006, p. 428). Regarding school connectedness, overlap exists with student engagement inasmuch as both contain experiences internal to the student, meaning they lie within the student's perception of school relationships, level of support and care by peers and staff, and overall attitudes toward school and its importance (Marraccini & Brier, 2017; Moreira & Dias, 2019). Where the two constructs differ is in school engagement's inclusion of student's attitudes toward the importance of learning, being challenged, as well as their use of self-regulation strategies to improve focus and determination toward school-related activities (e.g., control and relevance of school work, future goals and aspirations, external motivation; Lovelace et al., 2014; Waldrop et al., 2019). Additionally, student engagement is broken down in a way to facilitate capturing the multidimensionality of engage-

ment through its subcategorizations of behavioral, academic, cognitive, and psychological engagement with, or perceived support from, peers, teachers, and parents/legal guardians (Lovelace et al., 2014; Waldrop et al., 2019).

The purpose of this study was to explore the relationship between student school engagement, variables from the IPTS (i.e., thwarted belongingness, perceived burdensomeness, and NSSI), and high school adolescent suicidal behavior, along with exploring differences in identity groups. Understanding these relationships can serve as an assessment in any setting to assist counseling professionals, in targeting prevention and intervention efforts. Specifically, in this study, it would allow school counselors to examine the risk factors for suicidal behavior within specific identity groups in a high school setting. The specific research questions were as follows: (1) How does student engagement in school (Student Engagement Inventory [SEI] subscales) relate to suicidal behavior (both suicidal ideation and plans and preparation) for high school adolescents? (2) Does thwarted belongingness, perceived burdensomeness, and NSSI mediate the relationship between student engagement in school and suicidal behavior for high school adolescents? (3) Do the relationships between student engagement in school, thwarted belongingness, perceived burdensomeness, NSSI, and suicidal behavior differ based on race, sexual orientation, or gender identity for high school adolescents?

MATERIALS AND METHODS

A descriptive correlational research design with two time points was conducted in one high school in the southeastern part of the United States. The current stated research questions are a small part of the larger study and are answered using only time point 1. Therefore, only the first time point sampling and the measures associated with the current research questions are provided in this section. The study was approved by the first author's Institutional Review Board as well as the school district's institutional research board.

Participants

Through convenience sampling, students in one high school were asked to participate. While no partnership existed prior to the study between the researchers and the school, the researchers were able to identify and connect with the school through partnership the school had with another entity. The high school is located in a suburban area outside of a major metropolitan in the southeastern region of the United States. The student body is racially and ethnically diverse, with over 40% of its students holding at least one marginalized racial and/or ethnic identity. While the high school is not Title I, it is the only high school in the district, which has several Title I schools that serve as feeder schools to the high school. A total of 1450 students were enrolled in the school, 69 students were absent on the day of the survey, 20 were not expected to

TABLE 1 Demographics, nonsuicidal self-injury, and suicidal behaviors.

	<i>n</i> (%)	% engaged in NSSI during one's life ^a	% currently engaged in NSSI ^a	% with serious suicidal ideation ^a
Race/ethnicity				
African American/Black	241 (22.3%)	79 (34.1%)	33 (14.6%)	20 (8.7%)
Native American/American Indian	5 (0.5%)	3 (75.0%)	2 (50.0%)	3 (75%)
Asian/Asian American	39 (3.6%)	16 (41.0%)	6 (16.2%)	6 (15.4%)
White/Caucasian	629 (58.3%)	230 (36.8%)	121 (19.8%)	64 (10.5%)
Hispanic/Latino/a	20 (1.9%)	9 (50.0%)	6 (35.3%)	7 (41.2%)
Other	134 (12.4%)	58 (43.9%)	36 (27.9%)	20 (15.7%)
9th grade				
10th grade	269 (24.9%)	95 (35.8%)	48 (18.4%)	29 (11.1%)
11th grade	204 (18.9%)	90 (44.8%)	42 (22.1%)	24 (12.1%)
12th grade	219 (20.3%)	90 (42.1%)	43 (21.0%)	31 (14.8%)
Sexual orientation				
Heterosexual	772 (71.5%)	235 (31.0%)	112 (15.2%)	53 (7.1%)
Gay/Lesbian/Homosexual	46 (4.3%)	26 (56.5%)	16 (34.8%)	12 (27.9%)
Bisexual	122 (11.3%)	85 (70.2%)	47 (39.8%)	39 (33.9%)
Not sure	45 (4.2%)	15 (34.9%)	8 (19.0%)	4 (9.8%)
Decline to state	19 (1.8%)	11 (61.1%)	5 (27.8%)	5 (31.3%)
Gender				
Male	496 (46.0%)	156 (32.3%)	78 (16.5%)	37 (7.8%)
Female	539 (50.0%)	214 (40.0%)	109 (21.0%)	67 (12.9%)
Transgender	18 (1.7%)	13 (72.2%)	11 (61.1%)	9 (52.9%)
Not sure	15 (1.4%)	12 (80.0%)	5 (33.3%)	5 (35.7%)
Decline to state	5 (0.5%)	3 (75.0%)	3 (75.0%)	3 (60.0%)

^aPercentages in this column are provided as the percentage within the row population (e.g., percentage of Black/African American students who engage in nonsuicidal self-injury [NSSI] or have serious suicidal ideation).

be on campus the day of the survey (e.g., college prep, other extracurricular activities), and 280 students did not complete the survey. A total of 1081 students responded to the survey, which was a 74.5% response rate from the entire student body (79.4% of students who were present). Two additional students were removed for failure to respond to the majority of the survey, leaving a total of 1079 students who participated in the study (see Table 1 for demographic information). The average age was 15.64 ($SD = 1.26$, range 13–19).

Materials

All students were asked to respond to a paper-and-pencil demographic survey and multiple measures. The following measures are used in this manuscript to answer the above-stated questions:

Suicidal behavior was measured using the Suicidal Ideation Scale (SIS; Rudd, 1989). The SIS asks individuals to self-report on a 10-item Likert-base scale, from 1 (*never or none of the time*) to 5 (*always or a great many times*), the degree to which they have had suicidal ideation

and attempts in the past week. The SIS can be summed to a total scale score, with a score ranging from 10 to 50. A score of >15 equates serious suicidal ideation (Luxton et al., 2011). Two subscales have also been identified on the SIS, Suicidal Desire (SD; four items) and Suicide Resolved Plans/Preparation (SPP; six items; Luxton et al., 2011). The SD subscale is characterized as having ideations and desires to end one's life, feeling like giving up, or feeling as if they were a burden on others, while the SPP subscale of the SIS is defined as a history of suicide attempts, planning and preparations for suicide, hopelessness, and beliefs that life will end in suicide. The SIS has been found to be valid when compared to similar measures of suicide, and all scale scores have strong internal consistency (total SIS Cronbach's $\alpha = 0.86$ [Rudd, 1989]; for both SD and SPP subscales, Cronbach's $\alpha = 0.89$ [Luxton et al., 2011]). Cronbach's α for the current sample was 0.91 for SD and 0.88 for SPP.

NSSI was measured using the Deliberate Self-Harm Inventory—Adapted (DSHI-A; Gratz, 2001; Wester & Trepal, 2010). The original DSHI (Gratz, 2001) was adapted to combine similar methods of engaging in NSSI (e.g., burning with a cigarette; burning with a lighter or match) and to

add current engagement in NSSI (defined as engaging within the past 90 days). Therefore, the DSHI-A (Wester & Trepal, 2010) assesses both lifetime engagement and current engagement in 11 methods of NSSI, such as cutting, burning, and hitting oneself. Participants respond yes or no to engaging in the method within the specified time frame (any point in their life; within 90 days). The DSHI-A has been used in multiple studies and has been shown to have adequate reliability and validity (e.g., Murray et al., 2008, Wester & Trepal, 2010; Wester et al., 2018). Only the dichotomous current engagement in NSSI was used in the current study to answer the stated research questions. NSSI was used to measure Joiner's IPTS construct of acquired capability.

Thwarted belonging and *perceived burdensomeness* were both measured using Van Orden et al.'s (2012) INQ. Individuals are asked to respond to a 7-point rating scale for 15 items that assessed perceived burdensomeness (six items) and thwarted belongingness (nine items). Both scales on the INQ have been shown to be valid and reliable in various samples (Van Orden et al., 2012). Cronbach's alpha for the current sample was 0.88 for thwarted belongingness and 0.94 for perceived burdensomeness.

School engagement was assessed using the SEI (Appleton et al., 2006). The SEI is a brief self-report measure, using 35 items to assess the cognitive and affective engagement of students in their school. Items are distributed across six subscales within these two types of engagement. Specifically, Teacher–Student Relationships (TSR; nine items), Family Support for Learning (FS; four items), and Peer Support for Learning (PS; six items) are components of the affective engagement of students, while Control and Relevance of School Work (CR; nine items), Future Aspirations and Goals (FA; five items), and Extrinsic Motivation (EM; two items) are components of the cognitive engagement of students. The SEI subscales have been found to be valid and reliable (Appleton et al., 2006; Moreira & Dias, 2019). Cronbach's alpha for all subscales in the current sample ranged between 0.78 and 0.88.

Procedure

All students in the high school were provided with the ability to participate, after parents consented. Legal guardians of the students were sent a consent form describing the study and provided the opportunity to opt their child out of the study. The school sent all parental consent forms home to the legal guardians, allowing multiple weeks for guardians to opt their children out of the study. No legal guardians opted their kids out of the study. All students were provided survey packets at the same time in a class during the school day with a video consent form provided. To ensure all students received the same information about the study, the researchers provided a video that highlighted information in the paper consent form students had received with their survey packets. This video was played by all teachers in the classrooms at the start of the time block, and after the video was played for students,

students could read through the consent form and decide whether they wanted to participate in the survey. Students had the option to opt out of the study. All survey packets, completed or not, were asked to be returned to the front of the room so that confidentiality of the decision to participate was upheld.

Data analysis

Data were missing at random from individual items within various measures; however, it was believed that using multiple imputation could alter the scores (e.g., more or less suicidal). Therefore, listwise deletion was used. Listwise deletion resulted in students being deleted from the sum scale score of variables (e.g., 24 students had missing data from the full-scale score of SIS desire, while 164 individuals had missing data to items from SEI teacher/student relations), which in turn resulted in fewer individuals than the full sample being included in the full regression models. Final sample sizes can be found within the *F* values for each of the regression models. While a few of the SEI subscales were normally distributed given skewness between -0.5 and $+0.5$, many of the independent variables and dependent variables were not normally distributed based on skewness and kurtosis. This is typical of suicidal variables, which tend to be negatively skewed (and we want them to be, otherwise suicidal behavior would be normally distributed and therefore higher in prevalence). Given the lack of normality of the variables, bootstrap hierarchical regression models were used to answer all research questions, using two dependent variables: (1) SIS SD subscale score and (2) SIS SPP subscale score. For the final research question, exploring the regression models individually for specific identity groups, only racial, gender, and sexual orientation groups that had a large enough sample size were explored in the analyses. Identity groups that had smaller sample sizes, thus lacking statistical power, were not examined. Using a priori analysis with GPower, a minimum sample size of 114 was needed to have adequate power for a moderate effect size, $\alpha = 0.05$, power = 0.80, and nine predictors. Bootstrap regression is used as a robust approach for testing significant effects in the context of a regression; specifically, it is a resampling method that is used to empirically estimate the sampling distribution for the estimated statistics (i.e., regression weights). As noted, bootstrap regression was selected given that suicidal behavior and the majority of the independent variables were not normally distributed. Bootstrap method was used as it does not require the same assumptions of normality and is able to analyze skewed data with outliers (Mami et al., 2020; Pek et al., 2018).

RESULTS

One hundred twenty students ($n = 120$; 11.1%) scored above 15 on the SIS, indicating serious suicidal ideation. Close to 400 students ($n = 395$; 36.6%) indicated engaging in NSSI

TABLE 2 Bootstrapping regression mediation models examining factors related to suicidal behaviors.

	Suicidal desire		Suicidal plans and preparation			
	<i>B</i> (<i>SE</i>)	Lower CI, upper CI	<i>B</i> (<i>SE</i>)	Lower CI, upper CI	<i>B</i> (<i>SE</i>)	Lower CI, upper CI
Step 1: SEI only to DV						
TSR	0.04 (0.03)	−0.02, 0.09	0.05 (0.03)	−0.01, 0.10		
CR	−0.05 (0.03)	−0.11, 0.00	−0.05 (0.03)	−0.10, 0.01		
PS	−0.26 (0.05)*	−0.35, −0.17	−0.22 (0.05)*	−0.32, −0.12		
FA	−0.12 (0.07)*	−0.25, −0.00	−0.10 (0.07)	−0.24, 0.02		
FS	−0.24 (0.07)*	−0.39, −0.11	−0.24 (0.07)*	−0.39, −0.10		
EM	0.20 (0.07)*	0.07, 0.33	0.08 (0.08)	−0.08, 0.24		
<i>R</i> ²	0.238		0.177			
Step 3: SEI and mediators to DV						
TSR	0.01 (0.02)	−0.02, 0.04	0.03 (0.02)	−0.01, 0.07		
CR	−0.05 (0.02)	−0.07, 0.−00	−0.05 (0.04)*	−0.10, −0.01		
PS	−0.00 (0.03)	−0.17, 0.06	−0.02 (0.04)	−0.11, 0.06		
FA	−0.09 (0.04)*	−0.11, −0.01	−0.07 (0.05)	−0.17, 0.04		
FS	−0.02 (0.05)	−0.03, 0.07	−0.04 (0.05)	−0.15, 0.07		
EM	0.06 (0.05)	−0.03, 0.15	−0.04 (0.06)	−0.15, 0.09		
PB	0.33 (0.02)*	0.28, 0.37	0.30 (0.03)*	0.25, 0.36		
TB	0.01 (0.01)	−0.00, 0.03	−0.01 (0.01)	−0.03, 0.02		
NSSI	0.75 (0.23)*	0.32, 1.23	1.08 (0.30)*	0.44, 1.66		
<i>R</i> ²	0.642		0.523			
	Perceived burdensomeness		Thwarted belongingness		NSSI	
	<i>B</i> (<i>SE</i>)	Lower CI, upper CI	<i>B</i> (<i>SE</i>)	Lower CI, upper CI	<i>B</i> (<i>SE</i>)	Lower CI, upper CI
Step 2: SEI to mediators						
TSR	0.95 (0.06)	−0.07, 0.17	0.26 (0.08)*	0.13, 0.41	0.00 (0.00)	−0.01, 0.01
CR	−0.04 (0.06)	−0.16, 0.09	−0.10 (0.07)	−0.24, 0.03	−0.00 (0.00)	−0.01, 0.00
PS	−0.60 (0.09)*	−0.77, −0.42	−1.99 (0.10)*	−2.19, −1.79	−0.02 (0.01)*	−0.03, −0.01
FA	−0.11 (0.13)	−0.36, 0.13	−0.09 (0.14)	−0.36, 0.17	0.01 (0.01)	−0.01, 0.02
FS	−0.52 (0.15)*	−0.81, −0.23	−0.85 (0.16)*	−1.16, −0.55	−0.03 (0.01)*	−0.05, −0.01
EM	0.30 (0.15)*	0.01, 0.59	0.19 (0.20)	−0.17, 0.61	0.01 (0.01)	−0.01, 0.03
<i>R</i> ²	0.218		0.539		0.070	

Note: An asterisk (*) indicates significance at a minimum of $p < 0.05$.

Abbreviations: CI, confidence interval; CR, control and relevance; EM, external motivation; FA, future aspirations; FS, family support; NSSI, current nonsuicidal self-injury engagement; PB, Interpersonal Needs Questionnaire perceived burdensomeness; PS, peer support; TB, Interpersonal Needs Questionnaire thwarted belonging; TSR, teacher support and relations.

at some point in their life, with 204 students (18.9%) indicating current (within 90 days) engagement in NSSI. Thus, over one in 10 students experienced serious suicidal ideation and nearly one in five students reported currently engaging in NSSI behaviors. Prevalence of suicidal and NSSI behaviors differs within racial/ethnic groups (see Table 1).

SEI subscales were regressed on both SIS SD and SIS SPP for the full sample using a bootstrapping hierarchical regression (see Table 2). Both models were significant ($F(6, 847) = 41.34, p \leq 0.001, R^2 = 0.23$; $F(6, 847) = 30.83, p \leq 0.001, R^2 = 0.18$), with large effect sizes for each regression at each step (R^2 ranges from 0.18 to 0.54) except for SEI

to NSSI (see step 3 in Table 2) and SPP (step 1 in Table 2). In the first step (in Table 2), only SEI subscales were entered. FS, PS, EM, and FA were all negatively related to SD. This initial model revealed that SEI subscales explained 23% of the variance in suicidal desire. Only PS and FS were related to SPP, with the SEI subscales (step 1, Table 2) explaining 18% of the variance of SPP. To test for mediation of SEI subscales by PB, TB, and NSSI, the predictors should be significantly related to the mediator (Baron & Kenny, 1986, step 2 of Table 2). A mix of cognitive and affective engagement (PS, FS, and EM) negatively related to PB, while only affective SEI subscales negatively related to TB (TSR, PS, and FS)

and NSSI (PS and FS). The full model (step 3, Table 2) for the full sample was significant for both SD ($F(9, 783) = 154.35, p \leq 0.001, R^2 = 0.64$) and SPP ($F(9, 783) = 94.47, p \leq 0.001, R^2 = 0.52$), explaining large amounts of variance in both models (64% in SD and 52% in SPP). The final analyses revealed that PB and NSSI were the strongest predictors in relation to SD and SPP and mediated FS and PS for SD and SPP and EM for SD. FA remained negatively and significantly related to SD, with a slight decrease in overall strength. This finding suggests that overall, PB and NSSI mediate the majority of the SEI subscales that were related to SD and SPP.

The full model was explored among smaller student subgroups, where the sample size was large enough for statistical power, to explore whether the final model was consistent across identity groups (Table 3). All bootstrapping regression models were significant for all groups, with effect sizes of the full model explaining similar, and large, amounts of variance (R^2 ranges from 0.45 to 0.70). For example, the full model explained 67% of the variance for Black/African American youth SD, while it explained 45% of the variance of SPP for students who identified as heterosexual. Overall, PB was consistently related to SD and SPP for all identity groups. However, all other variables differed in their relation to SD and SPP based on identity group. For example, NSSI was only related to SD for students who identified as White, sexual minority, or female, while NSSI positively related to SPP for all identity groups, except for students who identified as Black. While TB was not significantly related to SD or SPP in the aggregate sample model, TB was found to be a significantly positive predictor of suicidal behavior for some identity groups. Specifically, TB was positively related to SD for students who identified as Black or heterosexual—but was not related to SD for White, female or male students, or sexual minorities. TB was positively, significantly related to SPP for students who identified as White, but not for students of any other identity group.

While only FA was related to SD for the aggregate sample (and CR minimally related to SPP for the aggregate sample), a few SEI subscales are related to SD and SPP for some identity groups, while no SEI subscales are related for other groups. Specifically, EM positively related to SD for Black students and males, while FA was negatively related to SD for females and sexual minorities. The only SEI subscale related to SPP was TSR for heterosexual students, where it was positively related.

DISCUSSION

The counseling field has its roots in prevention, development, and wellness, and identifying ways for counselors working with youth (and particularly school counselors) to effectively use outcome data in driving suicide prevention efforts will help counselors meet the ongoing challenge of youth suicide through the unique counseling lens. In this way, counselors can provide school-wide suicide prevention efforts by building on the different factors of school engage-

ment, tailoring those efforts in a way that most effectively builds support for those factors most relevant to their student populations.

The IPTS has been supported by many authors in relation to suicidal behavior, yet these relationships have been explored minimally among samples of adolescents (Chu et al., 2017). Additionally, exploring these relationships among adolescents with diverse backgrounds is still needed, to understand the nuances of the relationships, given the existence of different risk and protective factors for individuals with marginalized identities (Hatchel et al., 2019; Meza et al., 2022; Tomek et al., 2018). Finally, understanding these factors in the context of school engagement and perceived support in school is important, as the school environment may be an effective place to provide prevention and intervention efforts for youth (Wester et al., 2017); this would help equip schools to provide prevention and early intervention support to the general student population, rather than depending on the emergence of warning signs that a student is at a higher risk for suicide. All of this is important given the differences in prevalence of suicidal risk and NSSI behaviors among racial and ethnic groups, sexual orientations, and gender identities in the current sample (refer to Table 1).

While specific school engagement/perceived support SEI subscales were related to SD and SPP in the full model, perceived burdensomeness and NSSI mediated the relationship for both peer support and family support in learning. Thwarted belongingness did not mediate, given that it was not significantly related to SD or SPP. SEI Future Aspirations remained significantly related to SD in the full model. These findings for SD indicate that intervention through addressing these SEI-related factors, specifically FA, and perceived burdensomeness and NSSI may be a method of reducing overall desire to die in youth. Thus, interventions aimed at reducing perceived burdensomeness and increasing future goals and aspirations may be helpful in reducing desire to die by suicide across adolescents of different identities. While this is true of the model of the full sample, relationships between school engagement, PB, TB, and NSSI and suicidal behavior differed slightly among students with various identities. One common factor was PB. PB was related to both SD and SPP for students of all identities. While PB was a common factor that related to SD and SPP for all student subgroups, differences did exist between groups—including the relationship of NSSI, TB, and individual subscales of the SEI.

These differences among identity groups are important, as they highlight different risk and protective factors for different identity groups, which the idea of different predictive factors has previously been noted by Meza et al. (2022). Understanding the varying risk and protective factors could result in different prevention and intervention strategies for youth. These nuances of related factors to suicidal behavior have not been fully explored in other studies given smaller numbers of participants in samples of adolescents in literature related to suicidality. In particular, White females often appear in higher numbers in literature around suicide and suicide prevention than their non-White peers (e.g., Forster et al.,

TABLE 3 Bootstrapping regression models examining factors related to suicidal behavior separately for race, sexual orientation, and gender.

	Black/African American		White		Heterosexual		Sexual minority		Males		Females	
	B (SE)	Lower, upper CI	B (SE)	Lower, upper CI	B (SE)	Lower, upper CI	B (SE)	Lower, upper CI	B (SE)	Lower, upper CI	B (SE)	Lower, upper CI
Suicidal desire												
TSR	0.00 (0.04)	-0.09, 0.08	0.02 (0.02)	-0.02, 0.06	0.02 (0.02)	-0.02, 0.06	-0.04 (0.04)	-0.14, 0.04	0.01 (0.03)	-0.04, 0.07	0.02 (0.02)	-0.03, 0.06
CR	-0.07 (0.06)	-0.18, 0.04	-0.03 (0.02)	-0.07, 0.02	-0.04 (0.02)	-0.09, -0.01	-0.00 (0.05)	-0.10, 0.10	-0.03 (0.03)	-0.10, 0.03	-0.06 (0.03)	-0.12, 0.00
PS	0.05 (0.06)	-0.07, 0.16	-0.01 (0.04)	-0.10, 0.07	0.02 (0.03)	-0.05, 0.09	0.01 (0.08)	-0.12, 0.17	-0.05 (0.05)	-0.15, 0.04	0.05 (0.05)	-0.05, 0.14
FA	-0.10 (0.08)	-0.26, 0.06	-0.09 (0.05)	-0.19, 0.02	-0.06 (0.05)	-0.15, 0.04	-0.20 (0.10)*	-0.40, -0.02	-0.09 (0.05)	-0.18, 0.01	-0.13 (0.06)*	-0.25, 0.01
FS	0.03 (0.07)	-0.11, 0.15	-0.08 (0.06)	-0.20, 0.04	-0.07 (0.05)	-0.18, 0.03	-0.02 (0.12)	-0.24, 0.22	-0.02 (0.06)	-0.14, 0.09	-0.07 (0.07)	-0.22, 0.07
EM	0.19 (0.10)*	0.01, 0.38	0.10 (0.05)	-0.01, 0.19	0.08 (0.05)	-0.01, 0.16	-0.02 (0.13)	-0.26, 0.25	0.12 (0.06)*	0.02, 0.23	0.02 (0.08)	-0.13, 0.17
PB	0.34 (0.03)*	0.29, 0.41	0.34 (0.03)*	0.29, 0.39	0.30 (0.03)*	0.24, 0.36	0.34 (0.03)*	0.27, 0.41	0.35 (0.04)*	0.26, 0.41	0.29 (0.03)*	0.24, 0.34
TB	0.04 (0.02)*	0.01, 0.08	0.00 (0.01)	-0.02, 0.03	0.02 (0.01)*	0.00, 0.04	-0.00 (0.03)	-0.05, 0.05	-0.00 (0.01)	-0.02, 0.02	0.02 (0.02)	-0.01, 0.05
NSSI	0.29 (0.62)	-0.88, 1.69	0.65 (0.28)*	0.12, 0.03	0.46 (0.27)	-0.10, 1.00	1.17 (0.46)*	0.22, 2.04	0.30 (0.36)	-0.34, 1.04	1.02 (0.32)*	0.40, 1.64
R ²	0.671		0.660		0.562		0.701		0.658		0.638	
Suicidal plans and preparation												
TSR	-0.01 (0.06)	-0.13, 0.10	0.03 (0.02)	-0.01, 0.08	0.05 (0.02)*	0.00, 0.09	-0.03 (0.07)	-0.17, 0.10	0.02 (0.04)	-0.06, 0.09	0.03 (0.03)	-0.03, 0.09
CR	-0.05 (0.07)	-0.20, 0.08	-0.03 (0.02)	-0.08, 0.01	-0.04 (0.02)	-0.09, 0.00	0.01 (0.07)	-0.12, 0.14	-0.04 (0.04)	-0.12, 0.03	-0.04 (0.03)	-0.10, 0.02
PS	0.02 (0.08)	-0.14, 0.19	-0.06 (0.06)	-0.18, 0.06	-0.03 (0.04)	-0.10, 0.05	0.02 (0.11)	-0.17, 0.24	-0.06 (0.06)	-0.17, 0.06	0.02 (0.07)	-0.11, 0.15
FA	-0.05 (0.09)	-0.24, 0.18	-0.07 (0.07)	-0.20, 0.06	-0.06 (0.05)	-0.16, 0.04	-0.15 (0.14)	-0.43, 0.13	-0.09 (0.06)	-0.21, 0.02	-0.07 (0.08)	-0.24, 0.08
FS	0.05 (0.10)	-0.19, 0.22	-0.08 (0.07)	-0.24, 0.06	-0.07 (0.06)	-0.21, 0.05	-0.06 (0.15)	-0.36, 0.21	0.07 (0.07)	-0.09, 0.20	-0.17 (0.08)	-0.32, 0.00
EM	0.10 (0.11)	-0.12, 0.34	0.07 (0.06)	-0.04, 0.18	0.06 (0.04)	-0.02, 0.15	-0.24 (0.20)	-0.65, 0.14	0.08 (0.06)	-0.03, 0.21	-0.04 (0.09)	-0.23, 0.16
PB	0.25 (0.06)*	0.14, 0.38	0.33 (0.03)*	0.26, 0.40	0.25 (0.04)*	0.16, 0.31	0.32 (0.05)*	0.23, 0.42	0.26 (0.05)*	0.16, 0.35	0.30 (0.04)*	0.23, 0.37
TB	0.04 (0.02)	-0.00, 0.08	-0.04 (0.02)*	-0.07, -0.01	-0.01 (0.01)	-0.03, 0.02	-0.03 (0.03)	-0.10, 0.04	-0.00 (0.02)	-0.03, 0.02	-0.03 (0.02)	-0.07, 0.00
NSSI	1.02 (1.09)	-0.88, 3.23	1.14 (0.34)*	0.47, 1.76	0.69 (0.33)*	0.07, 1.39	1.96 (0.60)*	0.75, 3.10	0.97 (0.46)*	0.13, 1.93	1.17 (0.42)*	0.36, 2.01
R ²	0.449		0.578		0.446		0.566		0.493		0.543	

Note: see Table 2 note on variable names. * indicates significant at a minimum of $p < 0.05$.

2020). Thus, it is possible that in underrepresented samples, between-group differences may get diluted when examining the aggregate sample. As an example, in this study, thwarted belonging did not appear to be a statistically significant contributor to SD or SPP in the full model (see Table 2), which is predominately made up of White students and females (see Table 1). However, TB was a statistically significant contributor to SD in Black students and heterosexual students and a statistically significant contributor to SPP in White students. These statistically significant differences in the contribution of aspects of IPTS to suicidal behavior underscore the need for a more nuanced understanding of how to better tailor suicide prevention and intervention efforts to the needs of diverse groups of students within schools (Wachter Morris et al., 2021).

Elementary and secondary schools serve most K-12 students in the United States, and as more students are presenting with mental health concerns—including risk of suicide (Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2023)—school-based mental health services are becoming more important. Schools need to be equipped not just with appropriate student support personnel (e.g., school counselors, school social workers, school psychologists, and school nurses), but they also need to think systemically about how to attend to building opportunities to infuse protective, prevention-based, and wellness-oriented factors into the curriculum. In this study, school engagement includes factors that could protect against feelings of thwarted belonging or perceived burdensomeness in students, thus reducing SD and SPP in adolescents. In the full model, peer support and family support are negatively related to all three of the variables of IPTS (TB, PB, and NSSI), revealing that as perceived peer and family support decreased for school, perceived TB, PB, and engagement in NSSI increased. External motivation also was negatively related to TB, while teacher support/relations were positively related to TB. The latter seems counterintuitive; however, it may be that students who are already feeling disconnected and isolated from others may seek out teacher support more frequently or that teachers may be recognizing students' disconnection with peers or within the school setting and therefore reach out to these students—creating this positive relationship between TSR and TB. By addressing these components of school engagement (PS, FS, EM) through prevention efforts in schools, it may decrease adolescent TB, PB, and NSSI engagement, which in turn will decrease suicidal behavior.

Some limitations exist in the current study. Specifically, the sample was taken from one high school, therefore limiting generalizability to other high schools or high schools with different demographics. While some demographic identities within the current sample allowed enough statistical power to examine them individually, all identity groups were not able to be explored given smaller samples sizes within some groups of adolescents. Some of these identity groups had higher rates of NSSI engagement and serious suicidal risk (e.g., Latine, transgender, Native American/American Indian)

but were unable to be explored to examine potential risk or protective factors related to suicidal behavior.

Implications

Conducting an assessment in the school setting, or any clinical setting for that matter, is important to ensure the development and implementation of appropriate prevention and treatment strategies. Assessments can help provide clinical understanding into the risk and protective factors that will assist in increasing wellness. Yet, differences within populations and subgroups need to be considered when conducting an assessment—particularly when examining those nuances within marginalized populations or populations that are not in the majority within the sample. Based on the results of the current study, if only the aggregate model was examined (see Table 2), interventions to decrease SD and SPP among high school adolescents would focus on decreasing perceived burdensomeness and NSSI behaviors. Decreasing perceived burdensomeness can occur by helping students increase academic performance, decrease stress around academic performance, and increase self-worth (Hill et al., 2019). Decreasing NSSI behavior includes increasing emotion identification (Wester et al., 2018), increasing emotion regulation (Nock, 2009), and enhancing problem-focused coping strategies (Nock, 2009; Wester et al., 2018). These ideas align with, or could be carried out, using the Advocating Student-within-Environment (ASE; Lemberger-Truelove & Bowers, 2019), where school counselors can support students' executive functioning and help them feel connected in the school setting. As Lemberger-Truelove (2010) identified, students are impacted by their school environment and, in turn, impact their school environment. If a school counselor can work with a student, who identifies as a female or a sexual minority, to increase the degree to which the student sees school as important to their future goals and aspirations, then the student may see the importance of school, provide more effort and engagement with school, and therefore not only feel more connected themselves but potentially help others feel more connected within the school environment.

While focusing on decreasing both perceived burdensomeness and NSSI in intervention and prevention efforts would, more than likely, be influential in decreasing suicidal behavior among many adolescents in the sample, this aggregate perspective also misses the unique protective and risk factors for various identity groups. Similar to the full-sample model, perceived burdensomeness permeated as a positive predictor of suicidal behavior for all students; however, NSSI did not. Thus, focusing on decreasing NSSI for students who identified as Black, as an example, may not impact suicidal behavior at all given the lack of relationship to suicidal behavior and the low rates of NSSI behavior among these students in the sample. Yet, having prevention and intervention efforts target external motivation would assist in decreasing suicidal behavior, while assisting in increasing control and relevance of academics and increasing future aspirations for

females would assist in decreasing suicidal behaviors. Therefore, intervention and prevention efforts should be targeted to specific students within the school based on the findings of this study—or an assessment that a counselor would conduct in their own setting. These individual targeted efforts align with the school counselor role as an advocate within the ASE. Lemberger-Truelove (2010) highlighted how the advocacy by a school counselor includes “triadic causal relationship between the student, the school environment, and the proxies that bind the student and each environment that has influence on the student” (p. 137). Being able to identify the unique predictors of NSSI, or more specifically, suicidal behavior for various identity groups in the school, and then further reassessing these within individual students, would be an important consideration for school counselors to be able to target risk factors of suicidal behavior for students in their school. Future research may also need to explore unique risk and protective factors for perceived burdensomeness to better target interventions.

In conclusion, while IPTS continues to be beneficial in understanding those who might be most at a risk of suicidal thoughts and behavior, it is notable that, for the majority of individuals in this study, TB was not significantly related to suicidal behavior, while PB remained a strong significant risk factor for all students, and NSSI was significantly related primarily to SPP and associated with SD for some students. Additionally, aggregate studies and samples that are drawn from less diverse samples may be under- or overvaluing aspects of IPTS for different identity groups. The potential relationships between school engagement and youth suicidal desires and behaviors are worthy of further examination, as researchers and educators consider the role that schools might play in primary suicide prevention efforts.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the Supporting Information of this article. The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data are not available.

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