SOCIAL INTEGRATION AND SUICIDE IDEATION

by

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A thesis submitted to the Graduate Council of
Texas State University in partial fulfilment
of the requirements for the degree of
Master of Arts
with a Major in Psychological Research
May 2019

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ACKNOWLEDGEMENTS

I would like to thank my thesis committee chair, Dr. Yueqin Hu and fellow committee members, Dr. Shirley Ogletree, and Dr. Joe Etherton for their help as I wasn't able to complete this project without them. Their feedback and knowledge helped me figure out how to further this thesis and allowed me to accomplish what I needed to do in order to progress through this time along with many other things. I would also like to thank fellow professors Dr. Kelly Haskard-Zolnierek, Dr. Krista Howard, Dr. Katherine Warnell, and Dr. Reiko Graham for listening to me and helping me how to handle with academic situations when I needed help/advice. I also thank my family and friends, even if quite a bit of them live in Midland, Texas, as they supported me in what I was doing. To my M.A. Psychological Research cohort, you were all wonderful peers who understood the struggles with me and were able to go through the same thing as I did as we all worked hard to accomplish our goals to make it through graduate school, and I am proud of you all for that. Finally, I would like to thank my partner Ryan Watkins for being my support system since he was in this same program, and still standing strong with me to the very end as I can say I graduate just like he did.

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LIST OF ABBREVIATIONS

Abbreviation	Description
IPTS	Interpersonal Theory of Suicide
NIMH	National Institute of Mental Health
CDC	Centers for Disease Control & Prevention
SILLS	Social Integration in Later Life Scale
MHI-18	Mental Health Inventory-18
INQ	Interpersonal Needs Questionnaire
PANSI Inventory	Positive & Negative Suicide Ideation Inventory
SuId	Suicide Ideation

ABSTRACT

Suicide is one of the leading causes of death among people in emerging adulthood. An essential component and early stage of suicide is suicide ideation. This study aimed to investigate the relationship between suicide ideation and social/interpersonal factors among college students, with the purpose of providing suggestions that may help prevent suicide at an early stage. Previous research has suggested a long list of risk factors for suicide including illnesses, recent loss, mental health issues, history of abuse, social isolation, etc. This study takes a social perspective to investigate suicide ideation. According to the Interpersonal Theory of Suicide (IPTS), thwarted belongingness and perceived burdensomeness are two elements of suicide ideation. Therefore, I hypothesized that individuals who experience more negative social integration will be more likely to develop thwarted belongingness and perceive more burdensomeness, which in turn will be associated with suicide ideation. Mental health was controlled in this study. Results showed that the majority of the student population of Texas State University did not have suicidal thoughts. Suicide ideation was negatively related to social integration and mental health, and positively related to thwarted belongingness and perceived burdensomeness. Regression and Structural Equation Modeling indicated that the effect of social integration on suicide ideation was first mediated by thwarted belongingness and perceived burdensomeness, and then mediated by mental health. Among all the factors examined, perceived burdensomeness is the most important predictor for suicide ideation.

I. INTRODUCTION

Suicide Ideation

Suicide is death caused by self-directed injurious behavior with an intent to die as a result of the behavior; a *suicide attempt* is a non-fatal, self-directed, potentially injurious behavior with an intent to die as a result of the behavior (Crosby, Ortega & Melanson, 2011). An essential step that may lead to suicide or suicide attempts is *suicide ideation*, which is defined as thinking about, considering, or planning suicide (Crosby et al., 2011). According to the National Institute of Mental Health (2015), suicide was considered to be the second leading cause of death among individuals within the age ranges of 15-34. In 2015, approximately 9.8 million adults aged 18 or older self-reported to have had serious thoughts about trying to kill themselves. About 1.4 million adults aged 18 or older had reported to have attempted suicide during the past year, and among those adults who attempted suicide, 1.1 million also reported making plans before attempting suicide (NIMH). Suicide behaviors have become dangerous and more frequent over the years. In 2007, America had 11.27 (rate by 100,000 individuals) suicides occur, which has since then increased to 13.42 suicides to occur in 2016 (Centers for Disease Control and Prevention (CDC), 2016).

To prevent suicide from its beginning stage, it is worthwhile to consider why individuals starts to think of killing themselves. Humans are social beings. People who surround us every day may influence our decision of living or dying. These people could be loved ones who could keep safe individuals going through hard times no matter the struggle, or push individuals to their limits and become the problem in the first place, making them question their existence. Therefore, it is reasonable to consider

interpersonal and social factors as preventative measures towards the beginning of the suicidal behavior, which for the current investigation, is suicide ideation.

Interpersonal Theory of Suicide

A well-established theory on suicide is the Interpersonal Theory of Suicide (IPTS; Van Orden, et al., 2010). This theory states that *thwarted belongingness* (loneliness and absence of reciprocal care), *perceived burdensomeness* (liability and self-hate) and *capability of suicide* (lowered fear of death and elevated physical pain tolerance) are three essential components for suicide (see Figure 1). The first two components are detrimental causes for suicidal ideation, which together with the third component could lead to suicide attempts and suicide. For this current investigation on suicide ideation, the primary focus is the thwarted belongingness and perceived burdensomeness factors. Thwarted belongingness includes feelings of social isolation, self-reports of loneliness, living alone, few social supports, broken families, social withdrawal, domestic violence, recent loss (such as death of a loved one), child abuse, and family conflict, as well as many other situational factors that follow along these lines (Van Orden, et al., 2010). Essentially, those who feel disconnected from others and/or feel they have no one for support will more likely have suicidal ideation. Perceived burdensomeness includes feelings of distress from physical illnesses, homelessness, incarceration, unemployment and undesirability. There are also likely feelings of low self-esteem, self-blame, shame, and agitation among the perceived burdensomeness factor. (Van Orden, et al., 2010). Therefore, feelings of self-hatred and liability lead to likelihood of suicide ideation. With both thwarted belongingness and burdensomeness, the chances of negative behaviors and decisions are increased.

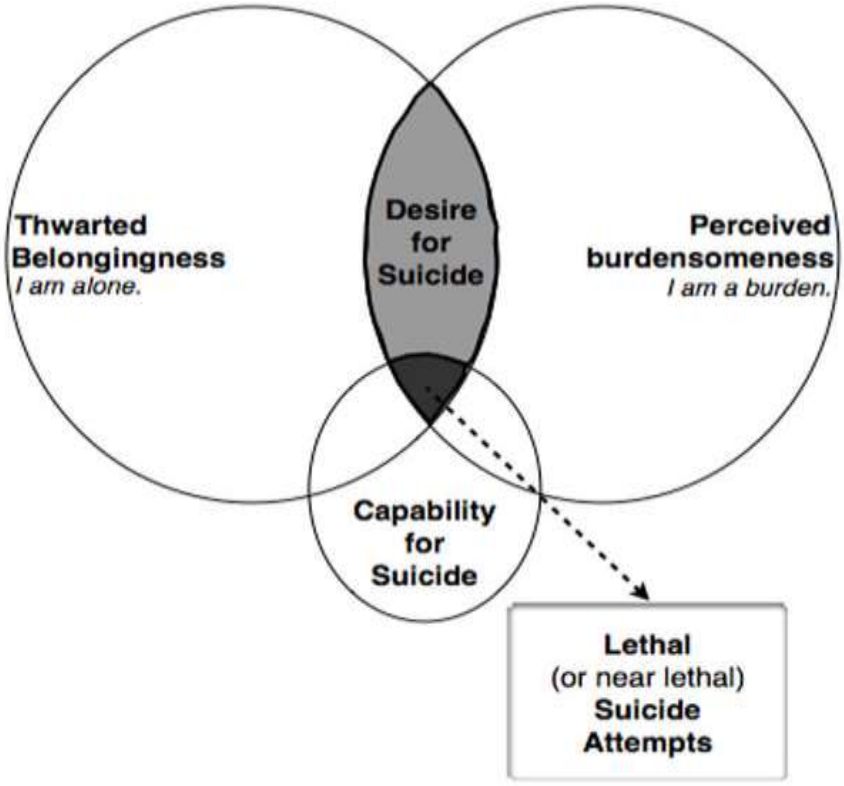

Figure 1. *Interpersonal theory of suicide*

The Interpersonal Theory of Suicide (IPTS) is supported by various studies. For example, Cera and his colleagues (2015) investigated the theory in samples of university undergraduates and psychiatric inpatients. The samples consisted of 609 undergraduates who completed an online questionnaire and 186 psychiatric inpatients who completed a battery of self-report questionnaires, along with intake and discharge interviews. Consistent with the IPTS prediction, this study found that increases in perceived burdensomeness and thwarted belongingness resulted in increased risk for suicide ideation (Cera et al., 2015). Additionally, no interaction between burdensomeness and belongingness in either sample was detected. Mainly from a perspective of interpersonal

relationships, IPTS provides a theoretical foundation for this study to investigate the relationship between social integration and suicide ideation.

Social Integration

Social integration is the extent of social relations and how an individual becomes involved with those relations (Holmes & Holmes, 2005). This term could be confused with *social support* or *social engagement/social participation*. According to Fuller-Iglesias and Rajbhandari (2016a), social support is defined as perceived help given to or received from others, while social engagement is defined as being a part of community among a variety of age groups, and social participation is defined as activities among those that are outside of the immediate family. Social integration is essentially a combination of all of those forms of social activities into one. However, such broad definitions make it difficult to specify how this construct relates to certain behaviors of others, such as suicidal behaviors. Therefore, it is critical to find a reliable measure of social integration. Fuller-Iglesias and Rajbhandari (2016a) used the Social Integration in Later Life Scale (SILLS, 2016b) for their study on 399 older adults to determine how their social integrations with others were a function of their older age. It has been discovered that the scale was useful for determining the frequency of and satisfaction with social integration. It was important for older adults to express themselves about their social ties and their time with their community. These activities include spending time with friends, family, volunteer work, religious services, etc. as well as how satisfied participants are with these activities.

Social Integration and Suicide Theories

There has been research supporting the link between social support and the

interpersonal theory of suicide. For example, research has shown that a lack of social support is an important predictor for thwarted belongingness and perceived burdensomeness (Christensen et al., 2014). However, we should also be cautious because the direction of the relationship may be the other way around. It can be argued that those who consider suicide have lost interests in friends, hobbies, and other activities they formerly enjoyed; this observation was geared towards younger people such as adolescents (Kumar & Mandal, 2010). Another study found that social support helped develop a sense of belongingness. Blumgart and fellow researchers (2014) investigated the relationship between social support and negative affect for people who have speech problems such as stuttering. They hypothesized that social support will help these individuals with self-esteem, motivation to adapt to a variety of situations, and develop a sense of belonging while lacking such support will lead to increased anxiety and negative affect symptoms. Among 400 participants (200 individuals who stutter and 200 who did not stutter), the researchers measured how they perceived their social support among their friends and families as well as their negative affect (depressed mood, anxiety, and interpersonal sensitivity). The results confirmed the hypothesis that individuals who stutter with poor social support experienced more negative mood and less belongingness (Blumgart, Tran, & Craig, 2014).

Another suicide theory closely related to social integration is Durkheim's 1897 Suicide Typology (Holmes & Holmes, 2005)**,** which explains how a person integrates into society and accepts the regulations of the group accounts for suicidal personality. Based on these two dimensions, Durkheim classified four different types of suicide (see Figure 2). The first type is the *Egoistic suicide*. This type of suicide occurs when the

degree of social integration is low. When a person commits this type of suicide they are not well supported in a social group. They feel like they are an outsider or loner and the only people they have in this world are themselves. They often feel very isolated and helpless during times in their lives when they are under stress. The second type is *Altruistic suicide*. This type of suicide occurs when the degree of social integration is too high. People only care about the group's norms and goals and completely neglect their own needs and goals. A suicide bomber is a good example of this type of suicide. The third type is *Anomic Suicide*, which is related to too low of a degree of regulation. A person cannot set reachable goals, and in turn people get extremely frustrated. The final type is *Fatalistic suicide*, where people's lives are kept under tight regulation, and they feel like they've lost their sense of self. The Egoistic suicide in Durkheim's Suicide Typology provide another theoretical foundation to support the rationale of this study in that it highlights the degree of social integration as a determining factor for suicide thoughts and behaviors.

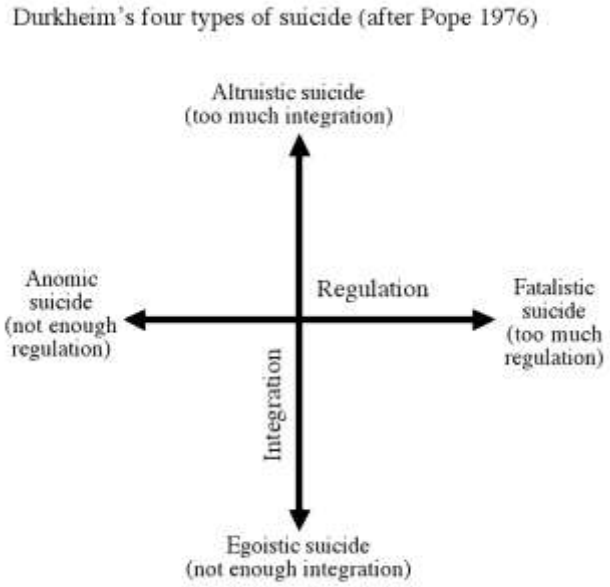

Figure 2. *Durkheim's four types of suicide*

Other Risk Factors for Suicide Ideation

The interpersonal theory of suicide and Durkheim's Suicide Typology highlight the role of a social component in the development of suicide behaviors; yet there is not one simple explanation for suicide, as Holmes and Holmes (2005) explain: "… we may never know the real reason a person commits suicide. This is a multifaceted problem with a serious consequence, and social isolation, lack of personal or intimate relationships, depression, and/or lack of adequate coping skills may all play some roles in a person's decision to commit suicide" (pp. 150-151). Previous studies have included mental health issues such as depression, anxiety, and others (Blumgart et al., 2014; Christensen et al., 2014) as being heavily considered when investigating suicide. When considering the symptoms or actions related to those behaviors, though, it should be worth considering that risk factors and these "behaviors" within these symptoms should be similar to social integration concepts.

Aldridge (1998) also attempted to explain potential individual problems that are considered "risk factors" predicting suicidal behavior. One of the factors is considered as "personal motivation" such as crying for help/not crying for help, to be out of the way, did not want to be around anyone, no longer belonged anywhere, and avoiding stigma. Another factor was "isolation", which consisted of being alone/having no one to talk to or situational factors such as being a single parent or not having any sex in your life. Other factors include personal stress and death of a loved one as potential risk factors of suicidal behavior (Aldridge, 1998).

Rudell and Curwen (2008) assessed risks of suicide by creating a list of potential factors individuals may have that link towards suicidal behavior, which includes

psychological/mental health problems, marital problems, physical illnesses, social isolation, employment problems, loss/bereavement, recent trauma, etc. Some of the factors that Rudell and Curwen (2008) have mentioned can be related towards feelings of thwarted belongingness or perceived burdensomeness, which in turn influence likelihood of suicide ideation. After Aldridge (1998) created a list of risk factors that may result to suicide behavior, Rudell and Curwen (2008), a decade later, proposed similar risk factors that confirm that people could have the same problems/risk factors.

Previous research has investigated the relationship between the above risk factors and interpersonal theory of suicide. A study conducted by Christensen et al. (2014) investigated the factors associated with the three components of the Theory of Suicide (thwarted belongingness, perceived burdensomeness, and capability of suicide). The researchers hypothesized that suicide attempt risk is higher among people who have a longer history of self-harm, have more methods, and report a lack of physical pain during self-harm. There were 1,167 participants who participated in the original study and returned the follow-up surveys. These results revealed that mental health was significantly related to all three constructs in the Theory of Suicide, whereas various social support measures (such as a strong relationship or a weak relationship from friends/family) were differently significantly related with the three constructs. For example, poor support from family and friends was positively correlated with perceived burdensomeness, but not correlated with thwarted belongingness. As for acquired capability (ability to kill self or not), results show that there was a connection between stressful life events and lifetime traumas as well as higher levels of psychoticism and receiving negative support from friends and family (Christensen et al., 2014). However,

given that the definition of belongingness was not clear for this study, further investigation would be needed to clarify the association between social concepts and the components of interpersonal theory of suicide.

Hypotheses and Rationale

Based on the interpersonal theory of suicide as well as Durkheim's Suicide Typology theory, social integration is an important indicator for suicide ideation. In addition, the research on risk factors of suicide also supported the role of social support, social isolation and other forms of social factors in the development of suicide behavior. Along with social factors, previous research also highlighted life events and mental illness as major risk factors for suicide. However, life events are often unexpected and lack controllability, and mental health issues may be involved with organic pathological change where medical and clinical intervention may be more relevant to prevent the problem. In contrast, social factors are more mutable, and interventions focusing on social factors may make systematic improvement to people's life.

Therefore, this study has mainly focused on the role of social factors in suicide ideation. If constructs such as social support, social isolation/engagement could play an important role in someone's decision making regarding suicide, then there could be multiple ways to help people in this position before the suicide ideation occurs and reduce the likelihood that suicide attempts will occur. Meanwhile, I also checked the role of mental health given its important role in literature. I wanted to know how mental health was related to belongingness and burdensomeness, whether it was a separate independent line of influence, or if it was integrated into the interpersonal theory of suicide. Moreover, since social components such as social support are frequently studied

together with mental illness, we included mental illness as an important covariate together with social integration to explain the individual differences in suicide ideation.

Given the large body of literature on social support and suicide, there was not much research on the form and direction of social engagement. Research has shown that there are individual differences in the way of participating in social engagement. For example, Bille-Brahe (1996) interviewed those who had attempted suicide. These individuals were asked questions on the likelihood of giving or receiving emotional support/practical support from others. Results revealed that men were more likely to report receiving social support, while women were more likely to report giving social support. Clearly, more research was needed on the form and direction of social integration. Therefore, since the main purpose of this study was to investigate the role of social integration in suicide ideation, particular attention was paid to the specific aspects of social integration, including the frequency of, satisfaction with as well as the direction of the integration (giving vs. receiving). This information provides suggestions to develop effective intervention strategies in the future.

Hypothesis. Overall, this investigation involves explaining suicide ideation, theories behind it and how social integration was potentially related towards that and other worse outcomes of suicide behaviors. Since prevalence of suicide is so high among 15-34 year olds (NIMH, 2015), it is very important to conduct research among those individuals in order to potentially help them find better methods of coping with social situations rather than live through them negatively or worse, end their lives. The negative risk factors (Aldridge, 1998; Rudell & Curwen, 2008) show how social interactions and behaviors can be potential causes of suicide attempts, but are there opposing aspects of

those factors that can help people avoid suicide attempts as well? This study includes satisfaction with and frequency of social integration as potential protective factors to suicide ideation and examines the following hypotheses.

1) Those who have a low sense of burdensomeness and a high sense of belongingness are less likely to have suicide ideation
2) People with positive interactions with social support/activities will have a low sense of burdensomeness and a high sense of belongingness; therefore they are less likely to have suicide ideation.

The above two hypotheses together form a mediation model, which is illustrated in Figure 3. Because mental health is a critical predictor for suicide/suicide ideation, it is also included in the model as a covariate. It is particularly important to examine the effect of social integration and interpersonal relationship when mental health is controlled, so that we can separate social factors as unique predictors that are independent of mental health.

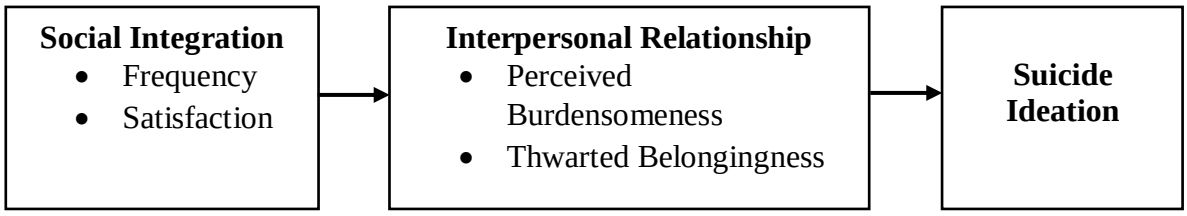

Figure 3. *Conceptual mediation model between social integration and suicide ideation.*

II. METHODS

Participants

A total of 206 participants were recruited from Texas State University psychology classes via the SONA subject pool system from. Eligible participants were registered students at Texas State University who were over 18 years old. Participants were between the age of 18 and 42, with an average age of 19.24 years and a standard deviation of 2.248. There were 42 males (20.4%) and 164 females (79.6%). The ethnicity of the participants were White (46.9%), Hispanic or Latino (31.9%), Black/African American (11.1%), Asian/Pacific Islander (7.2%), and those who classified as other (2.9%). The status as students were freshman (59.9%), sophomore (23.2%), junior (11.1%), senior (4.3%), and those who classified as other (1.4%). In terms of current living status, 9.7% of participants lived with parents/relatives, 77.2% lived with roommate(s), 3.9% lived with spouse/partner, and 9.2% lived alone. In total, there were 62.1% of the students who lived on campus and 37.9% of students who did not live on campus. For marital status, there were 96.1% of single/never married participants and 3.9% who were married or in domestic partnership. This sample also included a variety of employment statuses: employed part time (33.5%), employed full time (1.5%), not employed and looking for work (24.3%), and not employed and not looking for work (40.8%).

Measures

Demographics. A basic demographic questionnaire asked questions about age, gender, ethnicity/race, current grade level in school/level of education, marital status, living status, and employment. These items were used to portray the basic characteristics of the participants in the current study.

Mental Health. Mental health was measured using the *Mental Health Inventory-18* (MHI-18, Veit & Ware, 1983). This scale consists of four subscales (anxiety, depression, behavior of control, and positive affect) with 18 items which would help provide a general assessment of mental health among a college population based on self-report. These responses ranged on a six-point Likert scale from "All the Time" (6) to "None of the Time" (1). Questions from this scale include the "Have you been a very nervous person?" (Anxiety subscale), "Do you feel depressed?" (Depression subscale), "Did you feel you had nothing to look forward to?" (Behavior of control subscale), and "Has your daily life been full of things that were interesting to you?" (The positive affect subscale).

Social integration. Social integration was measured using the *Social Integration in Later Life Scale* (SILLS, Fuller-Iglesias & Rajbhandari, 2016b), which has 18 items on a five-point Likert scale. This scale was modified to fit the college student sample. The scale includes two subscales: one subscale assesses social integration frequency with others (i.e. "How often do you get together with your friends?")/community (i.e. "How often do you attend meetings of a group, club, or organization?") and another subscale measures social integration satisfaction with others (i.e. "How satisfied are you with your relationships with friends?")/community (i.e. "How satisfied are you with participation in religious or spiritual activities?").

Thwarted Belongingness and Perceived Burdensomeness. The two factors that are involved with suicide ideation (thwarted belongingness and perceived burdensomeness) was investigated using the *Interpersonal Needs Questionnaire* (INQ, Van Orden, Cukrowicz, Witte & Joiner, 2012). This scale has 15 items on a seven-point

Likert scale and includes two subscales, thwarted belongingness (i.e. “These days, other people care about me” or “These days, I feel disconnected from other people”) and perceived burdensomeness (i.e. “These days, I think I make things worse for the people in my life”).

Suicide ideation. Suicide ideation was measured by the *Positive and Negative Suicide Ideation Inventory* (PANSI Inventory; Osman, Gutierrez, Kopper, Barrios, & Chiros, 1988). The PANSI Inventory has 2 subscales with 14 items on a five-point Likert scale. The two subscales are the PANSI-Positive Ideation (questions that are not about suicidal thoughts; questions; i.e. “In the past six months, have you ever felt that life was worth living?”) and PANSI-Negative Ideation (questions that are about suicidal thoughts; i.e. “In the past six months, have you ever considered killing yourself because you could not live up to the expectations of other people?”). We combined both of the subscales as a total score for analysis.

Procedure

Participants completed an online survey in Qualtrics. First, they read the consent form, and then selected “I agree to participate” button to begin the survey. Otherwise, they could have opted out of the study. The survey took about 15-20 minutes to complete. After that participants were provided a link to the contact information to the Counseling Center and a suicide hotline which followed a “farewell and thanks for participating” text indicating that they have finished the study. Once all the data was collected, participants’ responses were viewed and checked for completion. Participants with more than 75% of missing data were deleted from the analysis.

III. RESULTS

Data Screening and Descriptive Statistics

Data was screened for missing data, outliers, and any violation of statistical assumptions including normality, linearity and homogeneity of variance. There were no outliers, however the histogram and QQ-plot indicated that the variable burdensomeness was not normally distributed, so log transformation was performed for this variable, and all following analyses used the log transformed variable.

Table 1 shows the descriptive statistics for each variable. The amount of missing data for all the variables are below 10%. Missing data were pairwise deleted in the following analysis. Cronbach's alpha indicated that the scales used in this study all had a good or excellent reliability, alpha>0.7. The average score for suicide ideation was low, with a value of 1.94 in a 5 point Likert scale, indicating that this sample in general reported a low endorsement for suicide ideation.

Table 1. *Descriptive statistics (n=214)*

	Scale	n	% missing	Mean	SD	alpha
Social Integration Frequency	1-5	202	5.6%	2.95	0.74	0.799
Social Integration Satisfaction	1-5	199	7.0%	3.43	0.91	0.816
Thwarted Belongingness	1-7	199	7.0%	2.78	1.24	0.867
Perceived Burdensomeness	1-7	200	6.5%	1.69	1.10	0.924
Mental Health	1-100	203	5.1%	59.67	18.48	0.930
Suicide Ideation	1-5	198	7.5%	1.94	0.83	0.932

Correlation

Pearson correlations were computed among the variables of interest. The correlation coefficients are shown in Table 2. All the variables were significantly correlated with each other, $p<.01$. Specifically, positive social integration including the frequency of the integration and the satisfaction with integration was negatively correlated with thwarted belongingness, perceived burdensomeness and suicide ideation. These results supported the second hypothesis.

Table 2. *Correlation table (n=214)*

	SIF	SIS	TB	PB	MH	SuId
Social Frequency	1					
Social Satisfaction	.513**	1				
Thwarted Belongingness	-.548**	-.490**	1			
Perceived Burdensomeness	-.269**	-.274**	-.592**	1		
Mental Health	.376**	.400**	-.675**	-.581**	1	
Suicide Ideation	-.383**	-.408**	.636**	.690**	-.705**	1

*Note: * p<.05, ** p<.01, *** p<.001.*

Regression

Regression analyses using the standardized approach was performed to test the hypothesized mediation model. Four regression analyses were performed to test the initial mediation hypothesis (Figure 3). The results of the regression analyses are listed in Table 3 regression models 1-4. Social integration was negatively associated with suicide

ideation. When the thwarted belongingness and perceived burdensomeness entered into the model, the effect of social integration disappeared or reduced, indicating a mediating effect of belongingness and burdensomeness. Therefore, the hypothesized mediation model was supported. Thwarted belongingness and perceived burdensomeness mediated the relationship between social integration and suicide ideation.

Since mental health (MHI) is an important predictor for suicide ideation (Suicide) based on literature, it is crucial to control this variable in this study so that we can examine whether social integration (Social Frequency and Social Satisfaction) and interpersonal relationship (Thwarted Belongingness and Perceived Burdensomeness) have their unique contribution to suicide ideation that is independent of mental health. Two additional regression analyses were performed (regression 5 and regression 6 in Table 3). Regression 5 included mental health together with other predictors in the suicide ideation model, and the result indicated that after mental health was controlled, the effect of social integration and thwarted belongingness on suicide ideation disappeared; yet perceived burdensomeness still had a significant direct effect on suicide ideation. These results implied that mental health may act as a mediator in the proposed model. Then Regression 6 was run to test whether social integration and interpersonal relationship variables predicted mental health. Results indicated that only interpersonal relationship variables significantly predicted mental health. Taken all together, social integration acted as a distal predictor for suicide ideation, whereas the interpersonal relationship variable of burdensomeness and mental health were proximal predictors.

Table 3. *Regression Analysis to Test the Mediation Model*.

Model	Regression	DV	IV	B	SE	beta	p
Initial Model	1	Suicide	Social Frequency	-.262	.083	**-.235**	.002
			Social Satisfaction	-.262	.068	**-.287**	<.001
	2	Suicide	Social Frequency	-.050	.067	-.045	.455
			Social Satisfaction	-.112	.053	**-.123**	.035
			Belong	.173	.047	**.260**	<.001
			Burden	.808	.097	**.490**	<.001
	3	Belong	Social Frequency	-.675	.112	**-.403**	<.001
			Social Satisfaction	-.387	.092	**-.283**	<.001
	4	Burden	Social Frequency	-.117	.054	**-.174**	.030
			Social Satisfaction	-.102	.044	**-.185**	.021
Control for MHI	5	Suicide	Social Frequency	-.052	.062	-.046	.406
			Social Satisfaction	-.079	.049	-.086	.109
			Belong	.060	.047	.091	.202
			Burden	.638	.095	**.387**	<.001
			MHI	-.016	.003	**-.367**	<.001
	6	MHI	Social Frequency	-0.027	1.618	-.001	.987
			Social Satisfaction	2.039	1.253	.100	.105
			Belong	-6.536	1.122	**-.438**	<.001
			Burden	-11.054	2.291	**-.306**	<.001

Note: significant regression coefficients are bolded.

Structural Equation Model

Based on the regression results, we modified our initial model to include mental health as a controlling variable as well as an important mediator. A SEM model based on the revised model was constructed (Figure 4), where the effect of social integration on suicide ideation was first mediated by belongingness and burdensomeness, and then mediated by mental health. This model fit data very well, with all the path coefficients significant at $p<.05$, CFI=0.992 > 0.9, RMSEA=0.061 < 0.08.

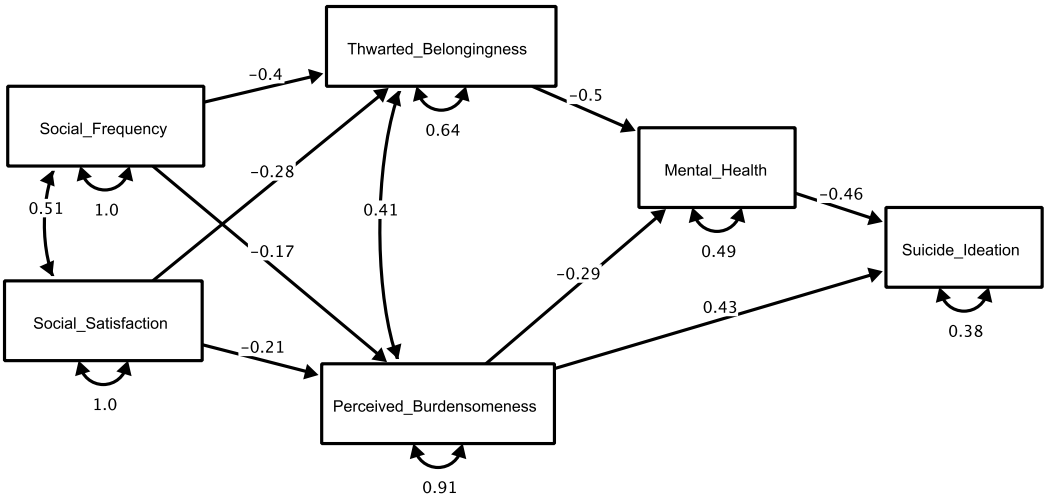

Figure 4. *Structural equation model with standardized path coefficients*

Based on the SEM model above, the direct, indirect and total effect of each variable is summarized in Table 4. These results implied that the frequency and satisfaction of social integration are both negatively affecting suicide ideation, so they are

protective factors to suicide ideation and they are equally important as indicated by a similar effect size. Mental health played an important role as the literature suggested. Yet, perceived burdensomeness still had a significant effect after controlling for mental health, and it also had the largest total effect among all predictors. The whole model explained 62% of the variance in suicide ideation.

Table 4. *The Direct, Indirect and Total Effect of Each Variable on Suicide Ideation*

Predictors	Direct	Indirect	Total
Social Integration Frequency	0	(-0.4)*(-0.5)*(-0.46)+(-0.17)*(-0.29)*(-0.46)+(-0.17)*0.43=-0.19	-0.19
Social Integration Satisfaction	0	(-0.28)*(-0.5)*(-0.46)+(-0.21)*(-0.29)*(-0.46)+(-0.21)*0.43=-0.18	-0.18
Thwarted Belongingness	0	(-0.5)*(-0.46)=0.23	0.23
Perceived Burdensomeness	0.43	(-0.29)*(-0.46)=0.13	0.56
Mental Health	-0.46	0	-0.46
Outcome: Suicide Ideation			R^2=1-0.38=0.62

IV. DISCUSSION

This study examined social integration as a distal protective factor for suicide ideation among college students and hypothesized that frequent and satisfactory social integrations led to less suicide ideation by reducing the thwarted belonging and perceived burdensomeness in interpersonal relationship. Results revealed that the majority of the student population did not have suicidal thoughts; yet individual differences were still detected. All of the variables mentioned from the hypotheses were significantly correlated with suicide ideation. Regression and SEM models supported the hypothesized mediation model, even after controlling for mental health.

The mediation model helps explain how frequency and satisfaction of social integration influences suicide ideation. The more individuals feel that they don't get to spend time with others (social frequency), how unhappy they are with their relationship with others (social satisfaction) will in turn effect how someone feels about how they could fit into social situations (belongingness) and how they perceive themselves in terms of being a bother or a burden (burdensomeness). Specifically, we found that for belongingness, the frequency of social integration is a more important predictor than the satisfaction, -0.4 vs. -0.28, whereas for burdensomeness, the satisfaction of social integration is equally important or a little bit more than the frequency, -0.21 vs. -0.17. These findings imply that the feeling of belongingness may be more rooted from the frequency of social integration, whereas whether people perceive themselves as a burden depends on both the quality and quantity of the integration.

The effect of perceived burdensomeness on suicide ideation is remarkable. This variable had a large effect on suicide ideation, and its effect remained significant even

when we controlled mental health. This result is consistent with the literature in that it emphasized again that mental health is not the only explanation to suicide ideation. Perceived burdensomeness has its own unique contribution in terms of being connected to thinking of suicidal thoughts. Rudell and Curwen (2008) had mentioned a series of factors that may be potential causes of suicide/suicide ideation which include psychological/mental health problems, marital problems, physical illnesses, social isolation, employment problems, loss/bereavement, recent trauma, etc. As mentioned earlier, some of these events or situational factors could contribute to the involvement of thwarted belongingness or perceived burdensomeness. People may generically suffer negative feelings for quite some time when these events happen to them, whether or not they were diagnosed with mental health issues. Perceived burdensomeness plays a much bigger role into considering suicide than we originally thought. The feeling of one's self as a burden in interpersonal relationship itself can be a trigger of suicidal thought.

This study adds to the literature by emphasizing the protective role of social factors in suicide ideation, as well as distinguishing the influence of interpersonal relationship from mental health problems. The frequency and quality of social integration was investigated separately, and their relative importance to different aspects of interpersonal relationship was also examined. The findings of this study may provide suggestions for suicide intervention. For example, behavioral therapy may encourage people increase the amount of social integration which helps build belongingness, and improve the quality of social integration which may reduce the perception of burdensomeness. And cognitive therapy can also target changing people's thoughts of themselves as burdens to others.

Limitations

Limitations to this study include an unbalanced gender ratio and small sample size. Also, all the participants are from the psychology classes. This could have a potential bias in that the results of this study may be due to these particular participants having more knowledge of psychology/mental health than the average person, so they may have prior expectations on how to answer these kinds of questions. Also, the high number of freshman students (59.9%) who participated in the study could be all from intro to psychology classes, which again could be a potential bias to the results. If this is the case though, these individuals may not have had a lot of experience in their lives to even think of suicide compared to someone else who is older and more experienced. Therefore, cautions should be taken to generalize the findings in this study to a different population with a variety of age ranges, class statuses, or student/work status.

Future Directions

Future research can investigate particular circumstances that could lead an individual to consider suicide. Although we used the Social Integration in Later Life Scale (SILLS, Fuller-Iglesias & Rajbhandari, 2016b) to investigate the frequency and satisfaction of relationships, social integration is much more complex than those two variables. If there was a way to investigate this same topic by also looking into traumatic events, interpersonal conflict, relationships in virtual worlds, religion, or other issues that we could bring up as a measure of social integration, then we could have had a better answer to how someone may potentially think of suicide and how we can prevent it.

Another future direction is to build a better scale to measure suicide ideation. It was challenging to find a suicide ideation scale that did not go into detail regarding

attempting/committing suicide. The existing scales on this topic sometimes ask participants to answer questions that have a graphic nature, such as what items of choice would you want to use to kill yourself with (gun, knife, pills, etc.). Without suicide intervention professionals on board, it is risky to use this kind of questionnaires. The Positive and Negative Suicide Ideation Inventory (PANSI Inventory; Osman et al., 1988) used in this study was useful in terms of having both positive questions (avoiding suicidal thoughts) and negative questions (thinking of suicide), but it is still not the most appropriate scale. Better measurement tools are needed in order to safely investigate this topic in a research setting.

Suicide as well as suicide ideation is still considered a dark topic to discuss-even in the research world. Instead of avoiding this topic, at least we can try to tickle the issue from different angles. Hopefully, the more we investigate things like this, we will be more capable to help people who live under the darkness of suicidal thoughts for ages. Suicide is a permanent solution to a temporary problem, so let's see where the source of the problem is and stop it if we can.

APPENDIX SECTION

APPENDIX A: MENTAL HEALTH INVENTORY

	All of the time	Most of the time	A good bit of the time	Some of the time	A little bit of the time	None of the time
1. Has your daily life been full of things that were interesting to you?						
2. Did you feel depressed?						
3. Have you felt loved and wanted?						
4. Have you been a very nervous person?						
5. Have you been in firm control of your behavior, thoughts, emotions, feelings?						
6. Have you felt tense or high-strung?						
7. Have you felt calm and peaceful?						
8. Have you felt emotionally stable?						
9. Have you felt downhearted and blue?						
10. Were you able to relax without difficulty?						
11. Have you felt restless, fidgety, or impatient?						
12. Have you been moody,						

or brooded about things?						
13. Have you felt cheerful, light-hearted?						
14. Have you been in low or very low spirits?						
15. Were you a happy person?						
16. Did you feel you had nothing to look forward to?						
17. Have you felt so down in the dumps that nothing could cheer you up?						
18. Have you been anxious or worried?						

Appendix B. SOCIAL INTEGRATION IN LATER LIFE SCALE (SILLS)

How often do you…	1 = Never	2	3	4	5 = Frequently
1. Get together with family					
2. Speak to family on the phone					
3. Get together with friends					
4. Speak to friends on the phone					
5. Interact with social media					
6. Attend meetings of a group, club, or organization					
7. Attend a religious service					
8. Attend a community event					
9. Volunteer					
10. Go on an outing (e.g., museum, movie, play)					
How satisfied are you with your…	1 = Very Dissatisfied	2	3	4	5 = Very Satisfied
1. Relationships with close family members					
2. Relationships with extended family members					
3. Relationships with friends					

4. Relationships with neighbors					
5. Involvement in recreation/leisure activities					
6. Participation in social gatherings					
7. Involvement in or connection to your community					
8. Participation in religious or spiritual activities					

APPENDIX C. INTERPERSONAL NEEDS QIESTIONNAIRE (INQ)

	1 = Not at all true for me	2	3	4 = Somewhat true for me	5	6	7 = Very true for me
1. These days the people in my life would be better off if I were gone.							
2. These days the people in my life would be happier without me.							
3. These days I think I am a burden on society.							
4. These days I think my death would be a relief to the people in my life.							
5. These days I think the people in my life wish they could be rid of me.							
6. These days I think I make things worse for the people in my life.							
7. These days, other people care about me.							
8. These days, I feel like I belong.							
9. These days, I rarely interact with people who care about me.							
10. These days, I am fortunate to have many caring and supportive friends.							
11. These days, I feel disconnected from other people.							
12. These days, I often feel like an outsider in social gatherings.							

13. These days, I feel that there are people I can turn to in times of need.							
14. These days, I am close to other people.							
15. These days, I have at least one satisfying interaction every day.							

Appendix D. POSITIVE AND NEGATIVE SUICIDE IDEATION INVENTORY (PANSI)

Have you ever in a span of 6 months:	1 = none of the time	2	3	4	5 = most of the time
1. Seriously considered killing yourself because you could not live up to the expectations of other people?					
2. Felt that you were in control of most situations in your life?					
3. Felt hopeless about the future and you wondered if you should kill yourself?					
4. Felt so unhappy about your relationship with someone you wished you were dead?					
5. Thought about killing yourself because you could not accomplish something important in your life?					
6. Felt hopeful about the future because things were working out well for you?					
7. Thought about killing yourself because you could not find a solution to a personal problem?					
8. Felt excited because you were doing well at school or					

at work?					
9. Thought about killing yourself because you felt like a failure in life?					
10. Thought that your problems were so overwhelming that suicide was seen as the only option to you?					
11. Felt so lonely or sad you wanted to kill yourself so that you could end your pain?					
12. Felt confident about your ability to cope with most of the problems in your life?					
13. Felt that life was worth living?					
14. Felt confident about your plans for the future?					

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