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RESEARCH ARTICLE

Investigating the moderating role of thwarted belongingness, perceived burdensomeness, and suicidal capability in suicidal behavior

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ABSTRACT

Objective: Suicide is one of the leading causes of death in the world. The present research aimed to investigate the moderating role of thwarted belongingness, perceived burdensomeness, and suicidal capability in suicidal ideation, behavior, and attempts among the Iranian population.

Method: The data were analyzed using cross-sectional regression models. The population of this study included 600 students of the University of Mohaghegh Ardabili. The tools used to collect the data in this study were the Patient Health Questionnaire-2, the Depressive Symptom Index-Suicidality Subscale (DSI-SS), the Suicide Attempt Questionnaire, the Interpersonal Needs Questionnaire (IPTS), the Suicide Capacity Scale-3, the Adverse Childhood Experiences, the Generalized Anxiety Disorder Questionnaire, and the Suicidal Behaviors Questionnaire-Revised.

Results: The results of this study showed that there was an interaction between thwarted belongingness and perceived burdensomeness in suicidal behavior and DSI-SS. The results also showed that the acquired and practical capability subscales (suicidal capability) strengthen the relationship between suicidal behavior and the DSI-SS, on the one hand, and suicide attempt, on the other hand.

Conclusion: The findings of the study showed that the interpersonal theory of suicide can pave the way to prevent suicidal ideation and behavior in Iranian society, and it is recommended that Iranian practitioners apply the theory in practice.

Keywords: Attempted, depression, students, suicidal ideation, suicide

INTRODUCTION

Suicide poses a serious threat to public health, and the desire for suicide serves as a key indicator for measuring the mental health of the members of society. Therefore, this phenomenon has always been the subject of debate among psychologists. Given that the number of people killing themselves has increased, the issue of suicide must be studied scientifically (1). Empirical studies show that multiple risk factors might lead to suicide, including suicidal thoughts and attempts (2), psychopathology (3), nonsuicidal self-injury (4), health-threatening behaviors (5), and poor social and family support (6). About 6.6 out of 100

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people were estimated to have committed fatal suicide in Iran in 2000 (7). However, research shows that this figure has increased to 9.9 over the past decade (8). Meanwhile, there are 20–25 nonfatal suicide attempts for every suicide death (9). A conservative estimate shows that more than 198 000 people committed suicide in Iran in 2016. Thus, it seems that it is vital to increase knowledge on suicide in Iran.

Many theorists have attempted to explain suicide, but they failed to distinguish suicidal thoughts from suicidal behavior. The ability to distinguish the two is important because many people have suicidal thoughts, but they never attempt to kill themselves (10). Thus, it is necessary to go beyond studying these unidimensional relationships and focus on integral causing mechanisms (11). This necessitates developing robust theoretical models on suicide that can both take account of sign-based risk factors and give an insight into the process of developing suicidal behavior.

Hence, the interpersonal-psychological theory of suicide was recently developed to fill this gap and propose a theoretical model for suicidal behavior (12). The model explains suicidal behavior that is testable and based on empirical evidence. In particular, the interpersonal-psychological theory of suicide suggests that the greater risk of suicide comes in line with three constructs: (i) loneliness (thwarted belongingness); (ii) perceived burdensomeness; and (iii) habituation to self-injury with the intention of nonsuicidal self-harm or other dangerous behaviors (13). Thwarted belongingness refers to a low sense of belonging and the belief on the part of the individuals that neither are they connected to others and family nor do they belong to a group of friends or any other group. Thwarted belongingness consists of two constructs: a sense of loneliness and an absence of reciprocal care (14). Perceived burdensomeness indicates the belief of the individuals that they are a burden to family members, friends, and society, who will function more properly in their absence. This feeling consists of two factors: (i) self-hate and (ii) feeling of being a liability to others (15).

Studies have shown a relationship between higher levels of perceived burdensomeness and suicide (12). However, the constructs of thwarted belongingness and perceived burdensomeness will turn passive suicidal ideation into active suicidal desire only in the presence of hopelessness (e.g., when the drastic situation will not change). However, this desire is not yet sufficient for developing suicidal intent, and another construct known as the acquired capability for suicide is required, which means one's capability to overcome the inherent drive for self-preservation and engage in self-harming behaviors with the intention of dying (16). In fact, the interpersonal-psychological theory of suicide (IPTS) holds as its major assumption that death by suicide can only occur in the combined presence of suicidal desire coupled with the vulnerabilities of fearlessness about death and tolerance for physical pain (13). Such events facilitate habituation to the fear and pain involved in suicide (17). Thus, the capability for suicide involves both dispositional and acquired elements and likely involves reciprocal relationships between these two elements (13,18).

A previous suicide attempt is one of the strongest predictors of suicide (19). Suicide attempters also report greater capability compared with suicide ideators and controls (20). As for the literature on suicidal capacity, a study by Smith et al. (21) found that people with suicidal ideation had a higher capacity for suicide attempts. Numerous studies confirm the efficiency of the interpersonal theory of suicide in understanding suicidal ideation and behavior (3,22,23). Nevertheless, as suicide has turned into a crisis and counts as a major social problem, it is necessary to study suicidal behavior in human societies, particularly in light of the theory. Three main hypotheses were tested in the present study: (i) there is an interaction between thwarted belongingness and perceived burdensomeness in the Depressive Symptom Index-Suicidality Subscale (DSI-SS); (ii) there is an interaction between thwarted belongingness and perceived burdensomeness in the Suicidal Behaviors Questionnaire-Revised (SBQ-R); and (iii) the acquired and practical capability subscales (suicide capability) strengthen the relationship between suicidal behavior and the Depressive Symptom Index-Suicidality on the one hand and suicide attempt on the other hand.

METHOD

Participants and Procedure

The population of this study included 600 students of the University of Mohaghegh Ardabili. In the present study, 139 participants (23.2%) were males and 461 (76.8%) were females. After obtaining the necessary permits and the code of ethics, the objectives of the study were explained to the participants. They were also informed that their participation was voluntary and that their information would be kept confidential. The participants were selected using convenience

sampling. Because this study was conducted from November 8, 2020, to February 21, 2021, during the COVID-19 outbreak during which the participants could not fill in the questionnaire in person, the questionnaires were prepared in Google Forms and their links were made available to the participants through social and educational media and online platforms (e.g., Crush and Telegram). The inclusion criteria were being a student, willingness to participate in the study, and filling out the ethical consent form. The exclusion criteria were withdrawal from the study, failure to answer the questions in the questionnaire, and/or giving random answers to the questions.

Instruments

Demographic Data

The assessed demographic data included the participants' age, gender, education, economic status, smoking, the likelihood of self-harm, and the likelihood of future suicide attempts [Likelihood of self-harm: (a) How likely do you think you are to intentionally hurt yourself again? and (b) How likely is it that you commit suicide one day?]

Patient Health Questionnaire-2 (PHQ-2)

This questionnaire includes two items and is used for screening people suffering from depression (24). This short screening tool evaluates the key depression indices, depression and anhedonia. This scale is scored on a 5-point Likert scale, and a higher score indicates more intense depression. Zhang et al. (24) reported a good internal consistency (0.27), reliability of resurvey (0.829), and proper correlation with the Beck Depression Inventory (r=0.65) for this scale. The items in the PHQ-2 were translated into Persian by Ahmadboukani et al. (25). The results of the factor analysis confirmed the one-factor construct (25). The data also indicated that the instrument has acceptable convergent validity and composite reliability (AVE=0.66; CR=0.91). In this research, reliability was measured using Cronbach's alpha coefficient at a proper level (0.67).

The Depressive Symptom Index-Suicidality Subscale

This scale measures the frequency and intensity of suicidal thoughts at the current time. This 4-question self-report scale evaluates the existence of suicidal thoughts and their intensity as well as the motivation for suicide. Each item in the scale comprises a set of phrases that are scored from 0 to 3. The highest possible score is 12. The higher the score, the bigger the problem. Two studies reported excellent internal consistency and convergent validity, as well as an ability to distinguish attempters from non-attempters in the statistical population (26,27). The items in the DSI-SS were translated into Persian by Ahmadboukani et al. (25). The results of the data analysis revealed that the questionnaire has acceptable convergent validity and composite reliability (AVE=0.61; CR=0.76). The internal consistency of this scale was reported to be high (a=0.91) in the present study.

Interpersonal Needs Questionnaire (IPTS)

There are several versions of this questionnaire (10-, 12-, 15-, 18-, and 25-questions). Hill et al. (28) (2015) reported that the 10- and 15-question versions had the highest internal consistency and indicated the most consistent model fit in confirmatory factor analysis. The 15-question version of the scale requires participants to choose the best option that suits their ideas about the level of their relationship with others (belongingness) and how much they think they are a burden to others (perceived burdensomeness) on a 7-point Likert scale in a self-report manner. This is significant because by using these tools, the participants can show the extent to which their interpersonal behaviors and values can predict other basic behaviors such as the desire for suicide. A higher score on the scale indicates higher degrees of perceived burdensomeness and thwarted belongingness. It also refers to one's belief that they are the root cause of problems and harm to others in their social interactions. Burdensomeness and thwarted belongingness stem from environmental factors such as encountering people throughout their lives. Moreover, three questions (questions 9, 11, and 12) were left out of the scale because of their low load factor. To measure the validity of the questionnaire, its correlation with depression, anxiety, and failure was evaluated and the findings were reported as convergent validity. Accordingly, the questionnaire had a desirable validity (29). In the present study, perceived burdensomeness and thwarted belongingness showed good internal consistency (a=0.92 and a=0.80, respectively).

Suicide Capacity Scale-3 (SCS-3)

This is a 6-item scale developed by Klonsky and May (10). The scale assesses three types of contributors to suicide capability, including dispositional capacity (long-standing pattern of low fear of pain or death), acquired capability (fear of death or pain decreased over time), and practical capacity (access to and awareness of suicide methods). The main study showed that this scale can help distinguish suicide attempters from suicide ideators. Meanwhile, Dhingra

et al. (30) reported that the scale had good internal consistency. Moreover, its correlation with the 20-item scale of acquired suicide capacity was positive and high, indicating higher validity (31). In the present research, the dispositional and acquired capacity subscales were consolidated into one factor. The SCS-3 was translated into Persian by Ahmadboukani et al. (32). The Chi-squared values (χ^2=8.843; df=7; p=1.212) in the model were within the acceptable range. Moreover, the goodness-of-fit indices (GFI), including the normed fit index (NFI), comparative fit index (CFI), and incremental fit index (IFI), were all in the optimal range (above 0.90), and the root means square error of approximation (RMSEA) was 0.019. Cronbach's alpha coefficients for practical, acquired, and dispositional capacity subscales were 0.714, 0.746, and 0.855, respectively (32). According to Kiani et al. (33), the two subscales of acquired and dispositional capacity are considered common factors.

Suicide Attempt

Based on the study by Dhingra et al. (34), one question was posed as: "How many times have you attempted to really commit suicide when you intended to somehow die?" The responses were scored from 0 to 5 or more. A study by Nock et al. (35) determined the concurrent validity of this item and other suicide questionnaires. As only a single item was used to measure suicide attempts, its psychometric properties were not assessed (33). In this study, the item was scored as: 0 for no previous suicide attempts and 1 for previous attempts.

Adverse Childhood Experiences (ACEs)

This questionnaire was developed by the US Center for Disease Control and Prevention and the Kaiser Foundation (36). It consists of 10 items, each measuring one dimension of a child's adverse experiences such as emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, household violence, parental imprisonment, parental mental illness, and parental divorce. The answer to the questions can be yes or no with an affirmative response suggesting that the experience occurred in the first 18 years of life. The total score ranges from 0 to 10. A higher score indicates more adverse experiences. One of the questions as an example is, "During the first five years of life, did any of your family members have depression, mental illness, or suicidal tendency?" The ACEs Questionnaire is a reliable and valid instrument for measuring childhood difficulties and problems. It has been used in a wide range of studies (37). The questionnaire was translated into Persian by Ahmadboukani et al. (38). The Chi-squared values (χ^2=48.939; df=27; p=1.813) in the model were within the acceptable range (38). Furthermore, the GFI such as the NFI, CFI, and IFI were all in the optimal range (above 0.90) and RMSEA was 0.041. Cronbach's alpha value was 0.67, confirming the reliability of the instrument.

Generalized Anxiety Disorder Questionnaire

This 2-item-questionnaire was developed by Kroenke et al. (39). Each item is scored on a 5-point Likert scale with a higher score indicating a higher level of anxiety experienced by the individuals. The items in the questionnaire were translated into Persian by Ahmadboukani et al. (25). The results of factor analysis confirmed the one-factor construct. The data also indicated that the instrument has acceptable convergent validity and composite reliability (AVE=0.63; CR=0.77). In this study, Cronbach's alpha value for this scale was 0.83, confirming the appropriate reliability of the instrument.

The Suicidal Behaviors Questionnaire-Revised

This questionnaire assesses the lifetime level of suicidal behaviors, level of suicidal thoughts within the past year, communication of suicidal intent to others, and the likelihood of a future suicide attempt. The total score ranges from 3 to 18, with higher scores reflecting more suicidal behaviors (40). This questionnaire was translated into Persian by Amini-Tehrani et al. (41) for administration in Iran. The results of their analysis confirmed the single-factor version of the instrument in the Iranian sample, and the factor loadings of the items ranged from 0.70 and 0.83 (41,42). In this study, Cronbach's alpha value for this questionnaire was calculated as 0.82, confirming the appropriate reliability of the instrument.

Statistical Analyses

The data were analyzed using SPSS Software (version 25) and AMOS Software (version 24). The initial analysis (e.g., exploring missing data, outliers, and normality) was conducted using SPSS software. AMOS was used to analyze the two steps of structural equation modelling (SEM): (i) a measurement model was developed for each scale, (ii) a measurement model was developed for all scales, and (iii) Hierarchical regression and logistic regression were used as two methods to study the role of moderating variables. A sample size greater than 200 is recommended for data analysis using SEM (43) or the ratio of the sample size to the number of indicators should be 5 (minimum) to 10 (optimum) (44).

Table 1: Means, standard deviations, and bivariate correlations

Variables	1	2	3	4	5	6	7	8	9
1. Depression	–								
2. Anxiety	0.67**	–							
3. ACEs	0.34**	0.31**	–						
4. Dispositional and acquired	0.14*	0.14**	0.13**	–					
5. Practical capacities	0.34**	0.29**	0.23**	0.04	–				
6. DSI-SS	0.36**	0.33**	0.27**	0.02	0.48**	–			
7. SBQ-R	0.43**	0.40**	0.44**	0.03	0.58**	0.68**	–		
8. INQ-PB	0.43**	0.43**	0.31**	0.15**	0.31**	0.39**	0.45**	–	
9. INQ-TB	0.42**	0.37**	0.21**	0.13**	0.27**	0.33**	0.28**	0.35**	–
10. Suicide attempt (n=86)	0.21**	0.21**	0.37**	0.07	0.30**	0.34**	0.62**	0.29**	0.12**
Mean	1.87	2.05	1.88	13.57	2.56	0.64	2.08	14.38	20.37
SD	1.61	1.66	2.04	5.19	3.31	1.59	3.08	8.00	7.12

*: P<0.05 level (two-tailed); **: P<0.01 level (two-tailed). SCS-3: Suicide Capacity Scale-3; ACEs: Adverse Childhood Experiences; DSI-SS: Depressive Symptom-Suicidality Subscale; SBQ-R: Suicidal Behaviors Questionnaire-Revised; INQ-PB: INQ-Perceived Burdensomeness; INQ-TB: INQ-Thwarted Belongingness.

RESULTS

The mean age of the male respondents was 23.34±4.81 years and that of the female respondents was 23.01±4.32 years. A total of 55 male respondents (39.6%) were under the age of 20 years, 41 (29.5%) were between 21 and 25 years, 17 (12.2%) were between 26 and 30 years, and 17 (12.2%) were above 30 years. A total of 151 female participants (32.8%) were under the age of 20 years, 208 (45.1%) were between 21 and 25 years, 72 (15.6%) were between 26 and 30 years, and 30 (6.5%) were above 30 years. A total of 70 participants (11.6%) had not finished high school, 98 (16.3%) had a high school diploma, 45 (7.5%) had an associate degree, 248 (47.3%) held a bachelor's degree, 81 (13.5) had a master's degree, and 22 (3.7%) held a doctoral degree. Among all, 113 participants (18.8%) came from families of very modest means, 308 (51.3%) from families of average means, 118 (19.7%) from families of good means, and 61 (10.2%) from wealthy families. Moreover, 73 participants (12.2%) were smokers. Most of the mothers of the participants (51.7%) had primary education, and most fathers (45.7%) had a high school diploma. Besides, 23.7% of the female participants had a high school education or lower, and 76.3% of the female participants had a university degree. About 42.4% of the male participants had a high school education or lower, and 57.6% had a university degree. The likelihood of suicide among the population was 43 (7.1%). Furthermore, 183 respondents (30.5%) harmed themselves more than once, while 32 participants (5.3%) reported a probability of self-harm.

The SPSS Software was used for data-screening tests to address missing data, outliers, and normality. The missing data (for items less than 3%) were handled using the imputation method. The data were reviewed to find outliers using a box plot. No outliers were observed. Moreover, the data were also checked for normality, and the values of skewness (1.43–0.072) and kurtosis (1.127 to -0.109) were less than 2 as thresholds; therefore, the variables were considered to be normal (45).

The correlation, mean, and standard deviation for all values are shown in Table 1. As expected, nearly all the variables were correlated with one another. Most correlations were average and positive. Moreover, 86 participants (14.3%) reported suicide attempts, and 37 participants (0.062%) had committed suicide more than once.

Measurement Model for Each Scale

Confirmatory factor analysis was performed on each scale. The items with a factor loading below 0.5 were supposed to be removed from the scales. The results indicated that all items had factor loading values greater than 0.5 and remained in the scales. The fit indices were used to evaluate the model fit for each scale. A rule of thumb for the fit indices (CFI, GFI, and Tucker–Lewis index) is that cutoff scores equal to or larger than 0.90 display a good model. Moreover, the scale is considered good if RMSEA and CMIN/df

Table 2: Hierarchical multiple regression equation predicting current DSI-SS (n=600)

Variable entered in step	F for step	R^2	t for factors	df	β	p
Step 1	27.08	0.156		595		**<0.001**
Sex			-2.61		-0.10	**0.009**
Age			0.077		0.01	0.938
Depression			5.23		0.27	**<0.001**
Anxiety			3.30		0.17	**<0.001**
Step 2	28.96	0.227		593		**<0.001**
INQ-PB			5.49		0.23	**<0.001**
INQ-TB			3.78		0.15	**<0.001**
Step 3	27.52	0.246		592		**<0.001**
INQ-PB × INQ-TB			3.83		0.50	**<0.001**

are below 0.08 and 5, respectively. The results of measuring fit indices revealed an acceptable model fit for each scale.

1. Thwarted belongingness, perceived burdensomeness, and their interaction in the DSI-SS

The first hypothesis was that there is an interaction between thwarted belongingness and perceived burdensomeness in the DSI-SS. The results of hierarchical regression with the DSI-SS as a dependent variable confirmed the interaction between thwarted belongingness and perceived burdensomeness (Table 2).

In this model, gender (β=-0.10, p<0.05), depression (β=0.27 p<0.001), thwarted belongingness (β=0.15, p<0.001), and perceived burdensomeness (β=-0.23, p<0.001) each predicted the DSI-SS independently but age (β=0.01, p>0.05) did not have a significant effect. The two-way interaction of thwarted belongingness with perceived burdensomeness predicts 1.9% of the Depressive Symptom Index-Suicidality above and beyond the main effects. The whole model predicted 25% of the Depressive Symptom Index-Suicidality [F(7,592)=27.52, p<0.001].

Figure 1 shows the interaction between perceived burdensomeness and thwarted belongingness to clarify the expected effect of a combination of two interpersonal constructs in the DSI-SS. As is evident, there was a positive relationship between thwarted belongingness and the Depressive Symptom Index-Suicidality Moderator by perceived burdensomeness.

2. Thwarted belongingness, perceived burdensomeness, and their interaction in SBQ-R

The second hypothesis was that there is an interaction between thwarted belongingness and perceived burdensomeness in the SBQ-R. The results of hierarchical regression with the SBQ-R as a dependent variable confirmed the interaction between thwarted belongingness and perceived burdensomeness (Table 3).

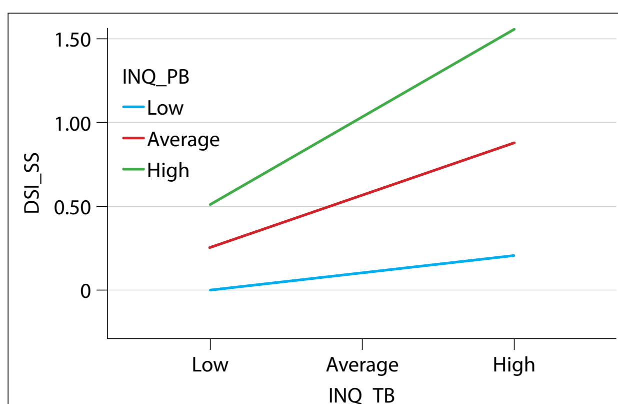

Figure 1. Interaction between perceived burdensomeness and thwarted belongingness in the prediction of Depressive Symptom-Suicidality Subscale. The interaction effect was significant (t(600)=3.83, p<0.001).

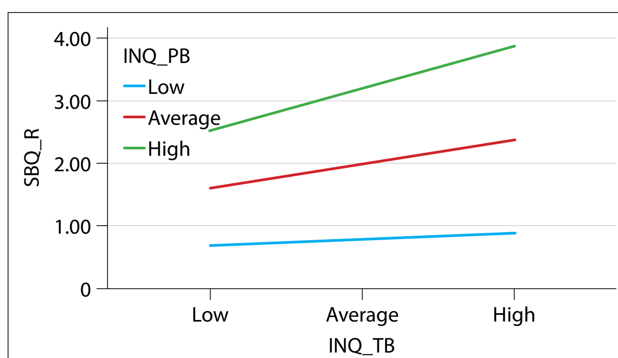

Figure 2. Interaction between perceived burdensomeness and thwarted belongingness in the prediction of Suicidal Behaviors Questionnaire-Revised. The interaction effect was significant (t(600)=2.16, p<0.05).

Table 3: Hierarchical multiple regression equation predicting SBQ-R-SS (n=600)

Variable entered in step	F for step	R^2	t for factors	df	β	p
Step 1	40.42	0.214		595		<**0.001**
Sex			-1.23		-0.04	0.218
Age			-2.07		-0.07	**0.039**
Depression			6.28		0.31	<**0.001**
Anxiety			3.97		0.19	<**0.001**
Step 2	39.83	0.280		593		<**0.001**
INQ-PB			7.34		0.29	<**0.001**
INQ-TB			1.24		0.05	0.214
Step 3	35.02	0.284		592		<**0.001**
INQ-PB × INQ-TB			2.16		0.27	**0.031**

In this model, age (β=-0.07, $p<0.05$), depression (β=0.31, $p<0.001$), anxiety (β=0.19 $p<0.001$), and perceived burdensomeness (β=0.29, $p<0.001$) each predicted the SBQ-R, but gender (β=-0.04, $p>0.05$) and thwarted belongingness (β=0.05, $p>0.05$) did not have a significant effect. The two-way interaction of thwarted belongingness with perceived burdensomeness predicts 0.6% of suicidal behavior above and beyond the main effects. The whole model predicted 28% of the SBQ-R [$F(7,592)=35.02$, $p<0.001$].

Figure 2 shows the interaction between perceived burdensomeness and thwarted belongingness to clarify the expected effect of a combination of two interpersonal constructs in suicidal behavior. A figure of the interaction between perceived burdensomeness and thwarted belongingness has been developed (Fig. 2).

3. DSI-SS, SBQ-R, acquired capability, and their interaction in a suicidal attempt

The third hypothesis was that the acquired and practical capability subscales (suicide capability) strengthen the relationship between suicidal behavior and the Depressive Symptom Index-Suicidality on the one hand and suicide attempt on the other hand (Table 4).

To statistically control the effect of age, gender, depression, anxiety, and childhood experiences, these variables were put in the first stage of the multiple hierarchical regression model. In this model, only the childhood experiences [odds ratio (OR)=47.62, $p<0.001$] were related to the suicide attempt. Depression (OR=0.450, p=0.502), anxiety (OR=3.02, p=0.082), age (OR=1.59, p=0.906), and gender (OR=0.663, p=0.394) did not have a significant effect. In the second stage, the Depressive Symptom Index-Suicidality, suicidal behavior, and the acquired-dispositional and practical capability subscales were added to the model, and the model improved considerably ($\Delta\chi^2=111.58$, $p<0.001$). In the third stage, to investigate the effect of the potential strengthening of the acquired-dispositional and practical capability subscales on the Depressive Symptom Index-Suicidality and suicidal behavior, the two-way effects were put in the model. The results of the regression model showed that all variables were strong predictors. However, there was no significant interaction between suicide and the desire for suicide on the one hand and acquired capability on the other hand. Only the interaction between suicidal behavior and suicidal capability was significant (OR=3.668, $p<0.05$).

DISCUSSION

The present study investigated the moderating role of thwarted belongingness, perceived burdensomeness, and suicidal capability in suicidal ideation, behavior, and attempts among the Iranian population. The findings of the study showed that there was an interaction between thwarted belongingness and perceived burdensomeness in suicidal behavior and suicidal ideation. It was also found that the acquired and practical capability subscales (suicidal capability) strengthen the relationship between suicidal behavior and the Depressive Symptom Index-Suicidality on the one hand and suicide attempt on the other hand. These results were verified by previous studies in the literature (3,22,23).

Table 4: Logistic regression analysis of moderating effects on Depressive Symptom-Suicidality Subscale and Suicidal Behaviors Questionnaire-Revised to predict suicide attempt (n=600)

Variable entered in step	χ^2 for step	Cox-Snell R^2	Nagelkerke R^2	Odds ratio	exp(B)	95% CI	p
Step 1	84.69	0.132	0.236				<**0.001**
Age				1.59	0.962	0.906–1.02	0.906
Sex				0.663	0.761	0.394–1.47	0.394
Depression				0.450	1.07	0.880–1.30	0.502
Anxiety				3.02	1.19	0.979–1.44	**0.082**
ACEs				47.62	1.52	1.35–1.71	<**0.001**
Step 2	111.58	0.279	0.501				<**0.001**
SBQ-R				58.41	1.77	1.53–2.04	<**0.001**
DSI-SS				6.43	0.762	0.618–940	**0.011**
Dispositional and acquired				0.910	0.970	0.911–1.03	0.340
Practical capacities				0.179	0.672	0.923–1.13	0.672
Step 3	4.29	0.285	0.510				<**0.001**
SBQ-R × dispositional and acquired				0.528	1.01	0.983–1.04	0.467
SBQ-R × practical capacities				3.68	0.965	0.930–1.01	**0.050**
DSI-SS × dispositional and acquired				0.00	1.00	0.954–1.05	0.997
DSI-SS × practical capacities				0.705	1.03	0.963–1.10	0.401

One of the main findings in the suicide literature is that people who die by suicide often experience social isolation before their death (46). In a similar vein, a study showed that thwarted belongingness contributes to 6% of the variances of suicidal thoughts (47). In addition to the direct effect of thwarted belongingness on suicide, studies have confirmed the indirect effect of thwarted belongingness on suicide, such as reduced psychological well-being (48), disturbance in self-regulation, pain tolerance (49), and distress in interpersonal relationships (50). Concerning the significant interaction between perceived burdensomeness and suicidal ideation and behavior, Hill and Pettit (28) showed that perceived burdensomeness has a statistically significant relationship with suicidal ideation and suicide attempt. Moreover, in a large cross-sectional study, Christensen et al. (51) showed that the interaction of high levels of belongingness and perceived burdensomeness are significantly associated with suicidal thoughts. A review by Ma et al. (52) showed that 40% of the studies focusing on the main effects of perceived burdensomeness, 86.6% on neutral belongingness, and 66.6% on the interaction between the two variables reported significant statistics about suicidal thoughts. In their meta-analysis, Chu et al. investigated the predictability of the interpersonal theory of suicide (IPTS) and showed that thwarted belongingness and perceived burdensomeness have a moderate effect on suicidal thoughts, but the effect of perceived burdensomeness is greater, as was confirmed in the present study. Although some researchers have concluded that thwarted belongingness is not as clinically significant as perceived burdensomeness or that perceived burdensomeness should be the primary focus of the clinical assessment of suicidal ideation (52,53), this assumption needs more empirical investigation.

To investigate the interactive effect of thwarted belongingness and perceived burdensomeness, the intervening variables were controlled in this study. Thus, controlling the effect of age, gender, anxiety, and depression accounted for the low variance explained. Rogers and Joyner (54) also suggested that if we separate the effect of some variables from suicidal thoughts, thwarted belongingness and perceived burdensomeness may not completely predict suicidal thoughts.

It is very difficult to separate thwarted belongingness and perceived burdensomeness because the existence of one construct may logically predict the existence of another. In fact, it would not

be suppressing if social exclusion or alienation leads to perceived burdensomeness. Alternatively, perceived burdensomeness may cause feelings of alienation and social exclusion. Thus, given the emphasis of previous studies on the interaction between the research variables, as well as the feeling of extreme loneliness and self-loathing in the interactive variables, it seems reasonable to assume that the interaction between thwarted belongingness and perceived burdensomeness leads to deep inner anger that, in turn, affects suicidal ideation and behavior.

Concerning suicide capability, the interpersonal-psychological theory of suicidal behavior (18) proposes that individuals will not die by suicide unless they have both the desire to die by suicide and the ability to do so. Smith et al. (21) showed that people who had suicidal thoughts reported suicide attempts. These findings are compatible with the interpersonal theory of suicide, which posits that for suicidal ideation to turn into suicidal intent or nonlethal suicidal behavior, the presence of increased fearlessness about death and increased tolerance of physical pain (self-perception capacity) is necessary. In fact, one can assert that individuals who have a higher capacity for suicide are capable of tolerating physical pain and being fearless about death. Therefore, these people can expose themselves to more suicidal behaviors because they can tolerate the pain caused by suicide and have no fear of death. In the interpersonal theory of suicide, the models assuming that severe suicidal ideation or increased risk-taking is tantamount to an increased risk of suicide are challenged. The findings of the study indicated that at least some of the aspects of suicidal capability play an important role in turning suicidal ideation into a suicide attempt. Thus, the mere existence of interpersonal needs is not sufficient to lead to suicide, and there must be another motivating variable, that is, suicidal capability, to turn this ideation into an attempt. The reason is that the existence of those prerequisites could always keep individuals at the stage of suicidal ideation, preventing them from committing suicide. This is where the acquired capability helps the person to turn the suicidal thoughts into action and take his life (13).

Accordingly, it can be argued that because people with a high capacity to commit suicide can tolerate higher physical pain and have less fear of death, they are more prone to suicidal behaviors, and the interaction of suicidal capacity and behavior can stimulate suicide from ideation to action because these people have a high capacity to bear the pain and have more courage to accept death than others.

As noted in the present study, the interaction between depression and suicidal capacity creates a stronger interaction for committing suicide. Thus, as Barzilay et al. (55) pointed out, poor impulse control caused by depression can lead to increased suicidal capacity and further suicide attempts.

Previous studies have also shown that some risk factors for suicide act directly without going through suicidal thoughts (55). One of these factors is suicidal behavior, which is committed to harm oneself and for which there is explicit or implicit evidence. The interaction of this variable with suicidal capacity increases the possibility of suicide. According to the theory of reciprocal processes, when people regularly engage in suicidal behaviors or are exposed to other fearful behaviors, the fear caused by that behavior decreases. As a result, people are not afraid of these situations and show more bravery in the face of injury, pain, and death. According to Joyner, although acquired capacity is very important, all three factors (perceived burdensomeness, thwarted belongingness, and suicidal capacity) are necessary for a person to commit suicide or die from suicide.

Overall, the interpersonal theory of suicide can pave the way to prevent suicidal ideation and behavior in Iranian society. The theory emphasizes necessary cognitive functions regarding suicidal ideation and suicide attempts. Therefore, assessing the cognitive functions of social bonds and burdensomeness can be of paramount importance. Knowing suicidal capability can be very helpful for an individual vulnerable to suicide. Besides, individuals susceptible to harming themselves physically or killing themselves must be cared for and watched carefully. While investigating past self-harming behaviors, it is essential to take heed of the age at which the behaviors started, their frequency, the method of self-harming, impulsivity, the experience of pain, drug abuse, and the shame and fear about self-harming behaviors. It can be helpful to teach how to tolerate anxiety and control emotions to preserve and enhance social relations and reduce negative interpersonal events, which could cause thwarted belongingness and perceived burdensomeness.

The present study was conducted on the Iranian population. However, it did not attempt to find the

causal relationship between the variables due to the nature of the correlation. Another limitation was related to the sampling method. The samples were selected from among those who volunteered and were cooperative. Therefore, it was impossible to control the unexpected variables. One of the most important limitations of the study is that the mental state of the participants was in the quantitative part, which was not evaluated qualitatively.

CONCLUSION

The results of the present study demonstrated the importance of thwarted belongingness and perceived burdensomeness as the first steps toward committing suicide. Although in this study, the moderating role of perceived burdensomeness was significant in the relationship between thwarted belongingness and suicidal ideation and behavior, for future research, it is suggested to distinguish between passive and active suicidal ideation (by dividing groups and determining the cutoff score based on the idea questionnaire) differentiate because interpersonal theory specifically predicts the interaction between these variables in the state of active suicidal ideation. The results can be helpful for Iranian researchers and psychologists. Therefore, it is recommended that practitioners try to make families and society aware of the importance of interpersonal relations to thwart the development of unmet interpersonal needs and prevent individuals from committing suicide.

Contribution Categories		Author Initials
Category 1	Concept/Design	S.A.
	Data acquisition	S.D., M.T.
	Data analysis/Interpretation	S.A.
Category 2	Drafting manuscript	S.A., S.D, M.T.
	Critical revision of manuscript	S.A., S.D.
Category 3	Final approval and accountability	S.A., S.D, M.T.

Ethical Approval: The University of Mohaghegh Ardabili Ethics Committee granted approval for this study (date: 02.11.2020, number: IR.ARUMS.REC.1399.425).

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