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ORIGINAL RESEARCH

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A structural test of the three-step theory (3ST) of suicide in the Iranian population: From ideation to action

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Abstract

Background and Aims: Suicide is one of the leading causes of death, especially in adolescents and young adults. This study aimed to perform a structural test of the three-step theory (3ST) of suicide in the Iranian population.

Methods: The research population included Iranian people over 18 years of age. The participants were 600 persons selected through convenience sampling. The data in this study were collected using the Suicide Attempt Questionnaire, the Suicide Behaviors Questionnaire-Revised, the Interpersonal Needs Questionnaire, the Impulsiveness Scale, the Depressive Symptom-Suicidality Subscale, ACSSACSS-Fearlessness About Death, the Psychache Scale, the Beck Hopelessness Scale, and the Suicide Capacity Scale.

Results: Data analysis showed that pain and positive helplessness ($\beta = 0.45$; $p < 0.05$) positively interact with suicidal behavior. Moreover, pain and negative helplessness significantly interact with suicidal ideation ($\beta = 0.65$; $p < 0.001$). The data also showed that the absence of interpersonal needs plays a protective role. A comparison of the three suicidal capacity factors indicated that only the practical capacity differentiates the ideation and action subgroups.

Conclusions: The insights from this study provide a clear picture of the underlying causes of suicidal ideation and behavior and can help counselors and other human health professionals working with people with suicidal thoughts and behavior to prevent suicide attempts. Following functional models, they can also make serious efforts to perform therapeutic interventions to eliminate or reduce suicidal thoughts and feelings.

KEYWORDS

hopelessness, psychological pain, suicidal capacity, three-step theory

1 | BACKGROUND

Suicide among adolescents and young people, especially university students, is one of the main public health concerns.[1] Students make up a young adult population particularly vulnerable to suicide.[2] In Iran, in 2000, 6.6 per 100,000 people committed suicide leading to death, but research shows that this number has increased to 9.9 people in the last two decades.[3] According to the reports of the Ministry of Health, Treatment, and Medical Education of Iran, suicide is the 13th cause of death in the country.[4]

Shneidman stated that suicide is a response to overwhelming pain (i.e., psychache).[5] Durkheim highlighted the role of social isolation.[6] Moreover, Baumeister described suicide as an escape from an aversive state of mind.[7] Joiner et al highlighted the role of hopelessness in suicide.[8] However, one of the weaknesses of these theories is the inability to separate ideation from suicide attempts.[9]

A substantial advancement in suicide theories happened 17 years ago when Thomas Joiner (2005) proposed the Interpersonal Theory of Suicide (ITS). According to this theory, the high risk of suicide is due to the interaction of three elements: (a) thwarted belongingness (INQ-TB), (b) perceived burdensomeness (INQ-PB), and (c) acquired capacity (SCS).[10] Another model in the field of suicide was presented by O'Connor (2011). O'Connor suggested that defeat and entrapment are the primary drivers of suicidal ideation and that SCS along with other factors account for the propensity to act on suicidal thoughts. This model suggests that background factors and triggers activate feelings of failure and humiliation, and then threats to their moderators make people feel trapped and this feeling, in the presence of motivational modifiers (if any), can lead to ideation for suicide. Finally, the progression from suicidal ideation into action occurs with the help of integrated motivational–volitional (IMV) modifiers.[11]

3ST of suicide presents a new ideation-to-action framework.[12] Klonsky and May's (2015) theory explains suicidal ideation and attempts in terms of four factors: pain, BHS, connectedness, and SCS. Pain in this theory refers to mental or emotional pain. This theory makes three central claims; First, suicidal ideation results from the combination of pain (usually psychological pain) and BHS. Second, connectedness prevents suicidal ideation in those who are at risk.[8] Third, strong suicidal ideation leads to suicide attempts, if the person has the means and capacity to do so. As soon as a person feels the desire to end their life, the next question is whether this person turns this desire into action and takes action. According to Joiner's (2005) theory, the basic indicator is whether a person can commit suicide.[13] Here, joiner's theory is expanded in two directions: Junior highlights the acquired capacity and capability to commit suicide. However, the 3ST adopts a broader perspective whereby three specific groups of variables can contribute to the capacity to commit suicide: dispositional, acquired, and practical capacities. Dispositional capacity refers to variables that are influenced by genetics such as sensitivity to pain[14] or fear of blood.[15] The SCS is similar to the same construct that Junior puts forward. Accordingly, going through pain, injury, fear, and death-related experiences can lead to a greater capacity for suicide over time. Practical capacity refers to the factors that make suicide easier such as knowledge and fatal tools.[16] Thus, the person is more likely to commit suicide when these three types of capacity are available.

Given the important consequences of suicide in the world, many studies have addressed it. However, most of the studies have not shown a significant decrease in suicide statistics and figures. Therefore, developing effective interventions and preventive strategies almost certainly requires a correct understanding of the processes underlying ideation, action, and death due to suicide.[8] To this end, the present study aims to present a structural test of the 3ST of suicide in the Iranian population. Thus, three hypotheses were developed and tested in this study: BHS plays a moderating role in the relationship between pain and suicidal ideation and behavior. Connectedness protects against the escalation of suicidal thoughts among people who have both pain and BHS. SCS differentiates suicide attempters from those with histories of ideation but not attempts.

2 | MATERIALS AND METHODS

2.1 | Translation of the instruments

The instruments were translated from English to Persian. To ensure that the Persian versions of the instruments correctly reflected the meaning of the English versions, two other people fluent in both languages were asked to back-translate the questionnaire into English. The translated versions and the original questionnaires were compared to ensure the validity of the translation.

2.2 | Pilot study

A pilot study was conducted on 30 students to assess the validity of the instruments. Then, after completing the survey consent form and responding to the items in the questionnaires, the respondents were asked to state any problems or ambiguities in the questionnaires. The respondents in the pilot study expressed their positive feedback about the overall constructs and items in the questionnaires. To improve the face validity of the instruments, some of the items were revised based on the feedback received from the respondents. Those students who participated in the pilot study were excluded from the main research sample.

2.3 | Procedure

After receiving the necessary permits and code of ethics, due to the COVID-19 outbreak, the students were asked to fill out an online questionnaire through platforms such as WhatsApp and Telegram from November 17, 2020, to February 21, 2021. The criteria for enrollment in the study were being a student, willingness to

participate in the study, and filling out an ethical consent form, and the exclusion criteria were withdrawing from the study, not answering all the items in the questionnaire, and giving inaccurate/random answers to the items. A-priori Sample Size Calculator for Structural Equation Models was used to determine the sample size.[17] The predicted effect size in this study was 0.19 with a test power of 0.80.[18] The minimum sample size for structural complexity was estimated as 117 persons and the maximum sample size for detecting the effect size was calculated to be 628 persons. A total of 650 students completed the questionnaires. However, 30 questionnaires with incomplete answers were excluded. Before running the statistical analysis, the data were screened, and univariate outliers were identified with a box plot. Thus, seven questionnaires with univariate outliers were removed. Multivariate outliers were also identified with Mahalanobis statistics, and the data from 13 participants with Mahalanobis distance greater than the chi-square value ($\chi^2 = 39.21$) were excluded as multivariate outliers.

2.4 | Data collection tools

2.4.1 | Suicide Attempt Questionnaire

Following Dhingra et al. (2016), a single item was used to determine the number of times the respondents had attempted suicide intending to die (How many times have you attempted to commit suicide in the past when you to some extent intended to die?). Nock et al. confirmed the concurrent validity of this item with other suicide questionnaires.[19,20]

2.4.2 | Suicide Behaviors Questionnaire-Revised (SBQ-R)

This 4-item questionnaire was developed by Osman et al. (2001). The questionnaire was translated into Persian by Amini-Tehrani et al. for administration in Iran.[21,22] They showed that the questionnaire has good convergent validity and composite reliability (AVE = 0.54; CR = 0.81). The reliability coefficient of the instrument in the present study was 0.82.

2.4.3 | Interpersonal Needs Questionnaire (INQ)

The questionnaire is available in several versions (10, 12, 15, 18, and 25 items). According to Hill and Pettit, the 10- and 15-item versions had the highest internal consistency and relevance with the exploratory factor analysis model.[23] The 15-item version of the instrument used in this study requires the respondents to pick in a self-report manner the choice that best suits their ideas. The instrument showed good internal consistency ($\alpha = 90$) and good reliability.[24] Moreover, three items (9, 11, and 12) were removed because of their low load factors. To measure the validity of the questionnaire, its correlation (convergent validity) with depression, anxiety, and failure was evaluated. The results indicated that the questionnaire had a desirable validity.[25] In the present study, the reliability values for INQ-PB and INQ-TB were 0.93 and 0.84, respectively, confirming the internal consistency of the instrument.

2.4.4 | Impulsiveness Scale

This 15-item tool was developed by Plutchink and Van Praag (1989). Following Dhingra et al., impulsivity was measured using two items in the Platching and Van Praag Impulsivity Scale.[19,26,27] Dhingra et al. (2015) reported the internal consistency of the scale to be 0.61. This scale was translated into Persian for use in Iran by Ahmadboukani et al.[28] The results of their analysis showed that the scale has good convergent validity and composite reliability (AVE = 0.64; CR = 0.77). The reliability coefficient of the scale in the present study was 0.76.

2.4.5 | Depressive Symptom-Suicidality Subscale (DSI-SS)

This instrument was developed by Metalsky and Joiner.[29] Davidson et al. reported that the scale had good internal consistency.[30] The items in the DSI-SS were translated into Persian by Ahmadboukani et al.[28] They reported that the scale has acceptable convergent validity and composite reliability (AVE = 0.61; CR = 0.76). The reliability coefficient of the scale in the present study was 0.90.

2.4.6 | ACSS-Fearlessness about Death (ACSS-FAD)

To measure the fear of death, the 7-item ACSS-FAD developed by Ribeiro et al. was used.[31] Higher scores indicate a greater fear of death. Dhingra et al. (2016) confirmed the internal consistency of the instrument by Cronbach's alpha method ($\alpha = 83$). The results of factor analysis confirmed the single-factor construct. Items 1, 4, 6, and 7 were removed due to the factor loading lower than 0.30.[28] The data indicated that the ACSS-FAD has acceptable convergent validity and composite reliability (AVE = 0.72; CR = 0.89). The reliability of the instrument in the present study was estimated as equal to 0.88.

2.4.7 | Psychache Scale

This 13-item scale was developed based on Shneidman's (1993) theory. Holden et al. assessed the psychometric properties of this instrument.[32] The assessment of the criterion validity confirmed significant positive correlations between the Psychache Scale and the Beck Hopelessness Scale (BHS) in people with suicidal ideation and attempts ($r = 40$). Holden et al. reported an internal consistency of 0.92 for this scale.[32] The results of the analysis indicated that the Psychache Scale has good convergent validity and composite

reliability (AVE = 0.58; CR = 0.96). The reliability coefficient for the scale in the present study was 0.96.

2.4.8 | Hopelessness Scale (BHS)

In this study, two independent scales (Brief-H-Neg and Brief-H-Pos) were used to assess hopelessness, and both of them were adapted from Fraser et al.[33] The two scales differed only in positive and negative statements. Both the Brief-H-Neg and Brief-H-Pos had a high correlation with the BHS ($r = 0.93$ and $r = 0.87$, respectively). Moreover, both scales had a significant positive correlation with the Beck Depression Inventory ($r = 0.68$ and $r = 0.88$). The internal consistency was calculated for Brief-H-Pos ($\alpha = 0.80$) and Brief-H-Neg ($\alpha = 0.77$). The results indicated that the Hopelessness Scale had good convergent validity and composite reliability.[34] In this study, the reliability coefficients of Brief-H-Neg and Brief-H-Pos were 0.78 and 0.72, respectively.

2.4.9 | Suicide Capacity Scale-3 (SCS-3)

This 6-item scale was developed by Klonsky and May (2015) to assess three different constructs of dispositional, acquired, and practical capacities for suicide. The original study showed that this scale can differentiate suicide attempters from suicide ideators. Dihingra et al. (2018) reported that this scale has an acceptable internal consistency ($\alpha = 0.72$). The scale was translated into Persian by Ahmadboukani et al.[35] The Cronbach's alpha coefficients for practical, acquired, and dispositional capacity subscales were 0.714, 0.746, and 0.855, respectively. Following Kiani et al. (2018), the two subscales of acquired and dispositional capacity are considered a common factor.

2.5 | Statistical analysis

Descriptive analyses (e.g., mean, SD, and frequency) and initial analyses (missing data, outliers, and normality) were performed using SPSS-25 software, and CFA, CR, and AVE were estimated using AMOS-24 software. AMOS was used to analyze the one step of SEM: 1. To create a measurement model for each scale. Meanwhile, hierarchical regression and logistic regression were used to study the role of moderator variables (James Gaskin package was used to draw graphs and Hayes' Macro Process was used to check the high and low scores of the moderator role).

3 | RESULTS

3.1 | Sample characteristics

Out of a total of 600 participants in the present study, 139 persons (23.2%) were male and 461 persons (76.8%) were female. The mean age of the male and female participants was 23.34 ± 4.81 and 23.01 ± 4.32, respectively. Besides, 387 persons (64.5%) had a bachelor's degree, 191 persons (31.8) had a master's degree, and 22 persons (3.7%) held a Ph.D. degree. In addition, 113 persons (18.8%) reported poor income, 308 persons (51.3%) reported a moderate level of income, 118 persons (19.7%) had a good income, and 61 persons (10.2%) reported a very good level of income.

Out of 600 students assessed in this study, 66 students had a psychiatric history. The risk of suicide in the future in this population was 43 cases (7.16%). Moreover, 183 students (30.5%) reported that they had intentionally harmed themselves more than once. Furthermore, 131 students (21.8%) reported a history of suicide attempts in their close friends. The data also showed that 80 students (13.3%) witnessed suicide attempts by their family members.

SPSS was used for the data-screening test and to address normality and missing data. Missing data (<3%) were addressed by imputation. The data were also checked for normality, and the skewness (1.22–122) and kurtosis values (1.23 to −0.392) were less than 2 as thresholds. Thus, the variables were considered to be normal.[36] The correlations for all values are shown in Table 1.

As expected, almost all variables were correlated. Most of the correlations were moderate and positive. To determine whether psychological pain and BHS independently and interactively predicted suicidal ideation, a hierarchical regression analysis was conducted. The first variable entered into the equation was psychological pain followed by BHS as the second step. Finally, to test the interaction, psychological pain × BHS was entered into the model in the last step (Table 2).

Psychological pain ($\beta = 0.52$; $p < 0.001$), Brief-H-Neg ($\beta = 0.25$; $p < 0.001$), Brief-H-Pos ($\beta = 0.16$; $p < 0.001$), and the interaction between pain and Brief-H-Pos ($\beta = 0.45$; $p < 0.05$) each independently predicted SBQ-R. The interaction of pain and Brief-H-Neg ($P = 250$, $\beta = 0.20$) had no significant effect. Moreover, psychological pain ($\beta = 0.462$; $p < 0.001$), Brief-H-Neg ($\beta = 0.23$; $p < 0.001$), Brief-H-Pos ($\beta = 0.10$; $p < 0.05$), and the interaction term of pain and Brief-H-Neg ($\beta = 0.65$; $p < 0.001$) each independently predicted DSI-SS. The interaction of pain and Brief-H-Pos ($\beta = 0.03$; $p = 884$) had no significant effect (Figures 1 and 2).

This study also examined whether the interaction effect of psychological pain and BHS among different demographic groups would remain the same. The interaction for SBQ-R was statistically significant in the male participants ($\beta = 0.68$; $p < 0.05$) and the female participants ($\beta = 0.43$; $p < 0.05$). Moreover, the interaction for DSI-SS was statistically significant in the male participants ($\beta = 0.32$; $p < 0.05$), but not significant in the female participants ($\beta = 0.22$; $p = 0.145$).

The INQ-TB subscale of the INQ was also used to assess the relationship.[24] Consistent with the 3ST, connectedness may moderate increased DSI-SS among individuals with both high pain and high BHS. As predicted, there was a positive and negative interaction between connectedness and pain-hopelessness ($t = 5.30$, $p < 0.001$; $t = 4.93$, $p < 0.001$). In the second step, the relationship between connectedness and DSI-SS in the subgroups with a high level of pain

TABLE 1 Correlations for the study variables, Mean and SD.

Variables	1	2	3	4	5	6	7	8	9	10	Mean ± SD
1. H-Neg	-										4.06 ± 2.32
2. H-Pos	0.66**	-									3.78 ± 2.16
3. Impulsivity	0.25**	0.20**	-								2.95 ± 2.33
4. Dispositioal & Acquired	0.13**	0.04	0.03**	-							13.57 ± 5.19
5. Practical capacities	0.42**	0.32**	0.22**	0.04	-						2.56 ± 3.31
6. DSI-SS	0.45**	0.36**	0.14**	0. 02	0.48**	-					0.64 ± 1.59
7. SBQ-R	0.52**	0.44**	0.26**	0.03	0.58**	0.68**	-				2.08 ± 3.08
8. INQ-PB	0.41**	0.28**	0.16**	0.14**	0.31**	0.39**	0.45**	-			14.38 ± 8.0
9. INQ-TB	0.30**	0.20**	0.11**	0.15**	0.27**	0.33**	0.28**	0.35**	-		20.37 ± 7.1
10. ACSS	0.02	0.01	0.12**	0.09*	0.07	0.01	0.05	0.12**	0.02	-	7.07 ± 3.55
11. Pain	0.32**	0.46**	0.24**	0.15**	0.38**	0.46**	0.52**	0.54**	0.43**	0.03	23.19 ± 10.7

Abbreviations: ACSS, Fearlessness About Death; DSI-SS, Depressive Symptom-Suicidality Subscale; H-Neg, Brief-H-Neg; H-Pos, Brief-H-Pos; INQ-PB, INQ-Perceived Burdensomeness; INQ-TB, INQ-Thwarted Belongingness; Pain, psychological pain; SBQ-R, Suicidal Behaviors Questionnaire-Revised; SCS-3, Suicide Capacity Scale-3.

*$p < 0.05$ level (2-tailed); **$p < 0.01$ level (2-tailed).

TABLE 2 Hierarchical regression predicting suicide ideation & behaviors.

	SBQ-R				DSI-SS					
	R^2 change	*F* for step	*t* for factors	Beta	*p*	R^2 change	*F* for step	*t* for factors	Beta	*p*
Step 1	0.266	217.22			0.001	0.214	163.29			0.001
Pain			14.74	0.52	0.001			12.78	0.46	0.001
Step 2	0.114	121.83			0.001	0.079	82.53			0.001
H-Neg			5.35	0.25	0.001			4.78	0.23	0.001
H-Pos			3.78	0.16	0.001			2.27	0.10	0.024
Step 3	0.010	79.95			0.009	0.024	55.19			0.001
Pain × H-Neg			1.15	0.20	0.250			3.47	0.65	0.001
Pain × H-Pos			2.89	0.45	0.004			0.20	0.03	0.884

and hopelessness was examined. Median scores were used to create subcategories for pain and frustration. The correlation between connectedness and ideation for the high pain-Brief-H-Neg subgroup ($n = 202$, $p < 0.001$, $r = 25$) was higher compared to other groups ($n = 398$, $p = 0.151$, $r = 07$). Moreover, the correlation between connectedness and ideation for the high pain-Brief-H-Pos subgroup was higher ($n = 182$, $p < 0.001$, $r = 29$) compared to other groups ($n = 418$, $p < 0.05$, $r = 0.097$).

To assess whether SCS-3 differentiates people who commit suicide from people who only have suicide ideation, the ACSS-FAD, and acquired, dispositional, and practical capacities were used. Then, the independent sample *t*-test was used to compare the SCS capacity of people with a history of DSI-SS without suicidal attempts and people with a history of suicidal attempts. Of the SCS-3, only the practical capacity ($t = 2.09$; $p < 0.05$) could differentiate the suicide ideators and attempters. The two factors of ACSS-FAD ($t = 0.921$; $p = 0.359$) and acquired capacity ($t = 0.02$; P = 842) had no significant effect.

In the next step, binary logistic regression analysis was run to evaluate the predictive power of BHS, INQ-TB, INQ-PB, SCS-3, and impulsivity in accounting for suicide attempts (Table 3).

The results showed that among all the variables, only INQ-PB, Brief-H-Neg, impulsivity, and practical capacity predict suicide attempts when controlling DSI-SS. The final model could explain 17.6%–31.4% of the variances in suicide attempts. The results showed that the model fitted the data well (Hosmer and Lemeshow: $\chi = 4.948$; $p = 0.763$). Overall, the model was able to predict 87% of all cases of suicide attempts.

4 | DISCUSSION

The findings of this study revealed that pain and hopelessness interacted to predict suicidal thoughts as confirmed in other studies.[8] The amount of variance was 39% for the SBQ-R and 32% for the DSI-

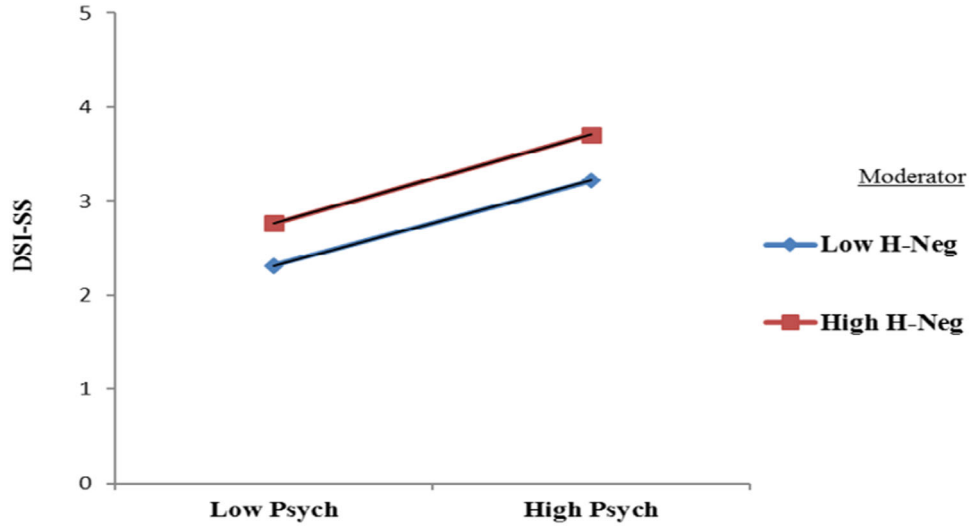

FIGURE 1 H-Neg strengthens the positive relationship between Psych and DSI-SS. DSI-SS, DSI-SS, Depressive Symptom-Suicidality Subscale; H-Neg, Brief-H-Neg.

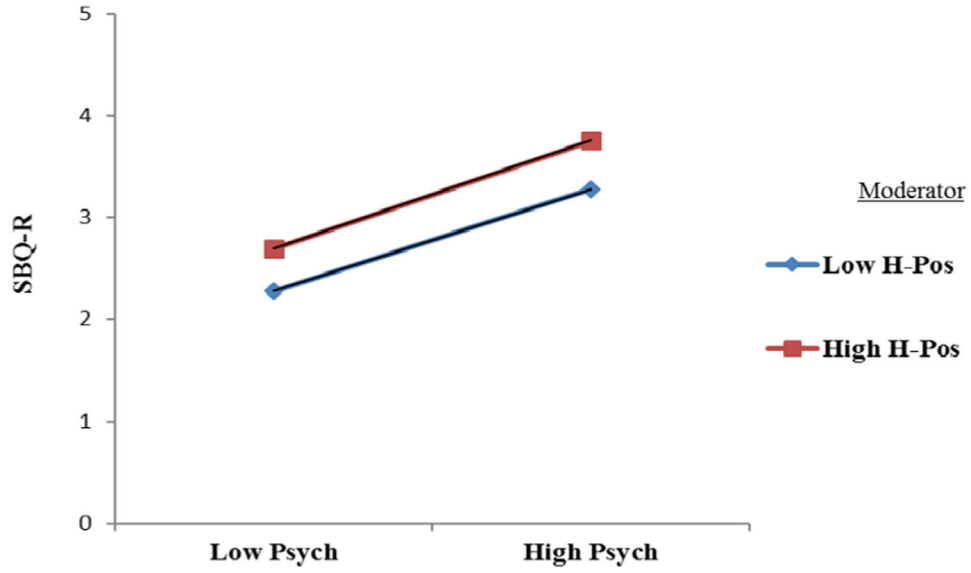

FIGURE 2 H-Pos strengthens the positive relationship between Psych and SBQ-R. H-Pos, Brief-H-Pos; SBQ-R, Suicidal Behaviors Questionnaire-Revised.

TABLE 3 Predictive power of suicide capacity on risk of suicide attempts.

	Dependent variable: suicide attempt					
	Exp. (*B*) (OR)	Wald	Cox–Snell R^2	Nagelkerke R^2	*p* Value	95% CI
Step 1			0.070	0.125	0.001	
DSI-SS	1.48	44.04			0.001	1.32–1.66
Step 2			0.176	0.314	0.001	
H-Neg	1.31	12.76			0.001	1.13–1.52
Practical capacities	1.10	5.89			0.015	1.02–1.20
Impulsivity	1.21	4.22			0.040	1.01–1.46
INQPB	1.04	7.13			0.008	1.01–1.08

SS. According to the 3ST of suicide, the first step towards suicide ideation begins with pain, usually psychological or emotional pain developed in all people by behavioral conditioning.[37] Thus, it can be argued that individuals are more likely to do behaviors that are rewarded and avoid behaviors that are punished. Thus, if one's experience of life is characterized by pain, the person is essentially punished for living, which can reduce the desire to live.[38] Different sources of pain in everyday life can all lead to a decrease in the desire to live.[8] The 3ST also suggests that if someone experiences life as painful or aversive, they will experience a powerful instinct to find a way out.[39] Thus, the first step toward suicidal ideation starts with pain, regardless of the source of the pain. However, pain alone does not cause suicidal ideation.[8]

Therefore, hope can be an important mediator to prevent suicidal thoughts. In other words, if a person with pain hopes that their condition will improve and the pain will decrease, instead of thinking about suicide, they will try to build a future with less pain, and vice versa. For this reason, hopelessness necessarily leads to suicidal thoughts. According to Klonsky and May (2015), if a person suffers from significant pain and hopelessness about improving the pain, he/she will consider ending his/her life. In short, the combination of pain and hopelessness is what leads to suicidal thoughts.[8]

Connectedness is a key protective factor against the escalation of suicide ideation in those experiencing both high pain and high hopelessness. Connectedness can mean connecting with other people as well as being interested in an object or any sense of purpose or meaning that is valuable in one's life.[38] This assumption is consistent with the results of previous studies.[8,40] Connectedness in the 3ST of suicide is similar to interpersonal needs in Joiner's ITS model.[13] Research shows a strong correlation between connectedness, pain, and suicidal ideation. This theory assumes that connectedness measured through the construct of ITS (INQ-PB and INQ-TB) is an essential factor in preventing suicide. Hence, if a person has psychological pain and hopelessness, but there is also connectedness, and those two ITS do not exist (i.e., INQ-PB and INQ-TB), the pain and hopelessness will not turn into action.

The third principle in the 3ST of suicide is that the progression from idea to action happens when the dispositional, acquired, and practical factors create sufficient capacity for the person to face pain and fear and cause the person to take action to end their life. Previous studies that have addressed the 3ST faced the question of whether suicidal capacity (the 6-item scale[8]) distinguishes suicide attempters from those with histories of ideation but not attempts. Each of these studies found moderate to large increases in suicidality in the attempters compared to the ideation-only group.[8,41] However, a comparison of three factors of suicidal capacity in the present study showed only the practical capacity was able to distinguish suicide attempters from those with histories of ideation but not attempts.

The data in this study revealed that only the practical capacity can differentiate between the population that attempts suicide and those that do not attempt suicide. This finding was consistent with Joiner's (2005) emphasis on suicidal capacity. However, the lack of any significant difference between inherent and acquired capacity can be attributed to the fact that the three-stage theory does not require a high level of ability. Although the findings showed the inherent desire in suicide attempters had a significant relationship with suicidal behavior and ideation, the data from the logistic regression analysis indicated that this variable could not account for the variances in suicide attempts. Perhaps this insignificance difference could be attributed to the lack of a distinction between the two groups in the main analysis, the small number of participants, and the lack of a clinical group. A huge bulk of the literature on practical capacity in suicidality supports practical capacity in the three-stage model. For example, previous studies have shown that increasing access to various types of lethal means increases suicide attempts and deaths, and decreasing access to these lethal means decreases the risk of suicide attempts and deaths.[42,43] Stage 3 shows that strong suicidal thoughts turn into action when the person can commit suicide. Factors related to practical capacity include knowledge, expertise, and access to lethal means. Self-efficacy predicts both history of suicide attempts and future suicide attempts. In addition, it practicality predicts which participants with a history of suicide attempts will attempt suicide again during the coming months. However, other measures of suicidal ability—including dispositional and acquired ability—showed weaker or nonsignificant relationships with past and future suicide attempts. The findings from the present study also indicated that factors related to practical capacity are more important than acquired or intrinsic factors to determine suicidality. The findings also suggested that a brief measure of practical ability may have significant utility in predicting future suicide attempts. The key point in this theory is whether the capacity to commit suicide is sufficient for a person with strong suicidal tendencies. For example, high practical ability (e.g., privacy and access to weapons or pills, expertise, and knowledge about it) can be sufficient for a strong desire to commit suicide, even if there is no dispositional and acquired capacity.[8,39]

Thus, if a valid measure of suicidal capacity fails to distinguish between individuals with high suicidal ideations and potentially lethal attempts, Step 3 is rejected. Besides, testing Step 3 is difficult because it requires identifying times when people have both strong suicidal ideation and capacity. This suggests that suicide attempts occur at certain times (i.e., where there are high suicidal ideation and capacity), but not at other times (i.e., high suicidal ideation and low capacity; low suicidal ideation and high capacity; and low suicidal ideation and low capacity).[8] Another challenge is that comprehensive and valid measures of suicide capacity, as defined by the three-stage theory, have not yet been developed.

5 | CONCLUSION

The 3ST describes the steps in a logical order, whereby the next step occurs only if the requirements set for the previous step are met. This means that this theory first addresses the conditions that cause the desire to commit suicide, because if those conditions do not exist, regardless of whether the conditions for the next stage are

established, there will be no desire to commit suicide. One of the most important limitations of the study was that the mental state of the participants was not evaluated in the qualitative phase of the study. Another major limitation of this study was the lack of accurate distinction between suicide attempts and intentional self-harm behavior, due to the lack of knowledge about the participants' objective and subjective intentions. Based on the current findings, several key areas such as previous suicide attempts, childhood experiences, and practical capacity should be assessed in suicide acute risk interviews, because these variables constitute the initial risk of suicide. Finally, on a larger scale, universities can reduce the risk of suicidal ideation by creating campus initiatives that increase hope, belonging, and self-esteem in students. No currently known prevention programs have been developed to address these feelings among college students and other at-risk populations in Iran. Thus, developing experimental tests for such programs is potentially useful.

AUTHOR CONTRIBUTIONS

Soliman Ahmadboukani: Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; resources; software; validation; writing—original draft; writing—review and editing. **Hosein Ghamari Kivi**: Conceptualization; supervision. **Ahmadreza Kiani**: Conceptualization; data curation; supervision; visualization. **Ali Rezaeisharif**: Conceptualization; methodology; supervision.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The protocol for this study was approved by the ethics committee of Ardabil University of Medical Sciences (Approval ID: IR.ARUMS.REC.2020.425). The participants were informed about the objectives of the study. All research procedures involving humans were consistent with the National Research Committee's ethical standards, the Helsinki Declaration of 1964, subsequent revisions, or equivalent ethical norms. Written informed consent was also obtained from all participants.

TRANSPARENCY STATEMENT

The lead author Soliman Ahmadboukani affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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