

**The Frustration of Interpersonal Needs as a Motivational Moderator in the Integrated
Motivational-Volitional model**

Abstract

A theoretical assumption of the Integrated Motivational-Volitional Model (IMV) positions perceived burdensomeness (PB) and thwarted belongingness (TB) as moderators on the entrapment-suicidal ideation/intention relationship. The present study aims to analyze the expected combined effects of PBxTB on the relationship between entrapment and suicidal ideation/intention. Data were collected using an online questionnaire (sample: 644 persons; 51.2% female; $M_{age} = 25.91$, $SD_{age} = 5.14$; *Range*: 18-35 years) selected by sex, age, and education level quotas. PBxTBxEntrapment interaction were statistically significant ($p=.026$), according to a moderating effect. A high degree of frustration of interpersonal needs (PB and TB) enhances the entrapment-suicidal ideation/intention relationship.

Keywords: perceived burdensomeness; thwarted belongingness; suicidal ideation; suicide; young adult

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Introduction

Suicide is currently a global health problem responsible for almost one million deaths each year (World Health Organization, 2017). It is estimated that annual deaths due to suicide in the next decade will reach one and a half million (WHO, 2017). Probably the most relevant suicidal variable in terms of prevention is suicidal ideation (Jobes & Joiner, 2019), although is not a directly observable behaviour. Suicidal thoughts (i.e., thoughts related to desire, intentionality or planning to end one's own life) are more common than suicide attempts (Hawton & van Heeringen, 2009) and ten times more frequent than death by suicide (Nock et al., 2008). A meta-analysis by Franklin et al. (2017) positioned prior suicidal ideation as the main risk factor for future episodes of suicidal ideation. Similarly, the third most relevant variable for predicting death by suicide was suicidal ideation. Therefore, suicidal ideation is also a therapeutic goal that could prevent other more serious suicidal behaviors (Zuromski et al., 2019).

The extent and severity of suicidal thoughts and behaviors has led to a substantial amount of literature attempting to understand and predict them (Franklin et al., 2017). Although the findings are sometimes discouraging (e.g., the low specificity and predictive ability of suicidal risk factors; Large et al., 2017), there have been many positive advances in the field of research on understanding suicide and its prevention.

One positive advance is the growing development of theories of suicidal ideation and suicidal behavior (O'Connor & Portzky, 2018). These new theoretical developments have not only modified our understanding of the complex suicidal process but have also opened a way to reduce suicidal risk and self-harm (e.g., Armitage et al., 2016). In the light of the ideation to action framework (Klonsky et al., 2017), these new theoretical models explicitly

distinguish between the elements involved in the development of suicidal ideation and those linked to the transition from suicidal ideation to suicidal action.

Regarding the development of suicidal ideation, the approaches of these new theoretical perspectives are similar in structure, but differ in which elements are considered fundamental. The first model from this perspective was *the interpersonal theory of suicide* (IPT; Joiner, 2005). This model proposes that suicidal ideation results from the feeling that the need for relatedness is frustrated. The frustration of this basic psychological need has been operationalized in two constructs: perceived burdensomeness (PB; perception of being a burden to oneself or others), and thwarted belongingness (TB; unmet need for feeling socially integrated). The relationship of both interpersonal needs and suicidal ideation was analyzed in a systematic review, which found a strong association between PB and suicidal ideation, and a moderate relationship between TB and suicidal ideation (Ma et al., 2016). Lastly, even though the meta-analysis by Chu et al. (2017) generally found support for IPT, the interaction between PB and TB was statistically associated with suicidal ideation, but the effect size was modest.

Later, *the integrated motivational-volitional model of suicidal behaviour* (IMV; O'Connor, 2011) synthesized extant evidence in a detailed theoretical framework. The IMV considers suicidal ideation/intention the result of a psychological process that begins with the perception of feeling defeated (a perception of failed struggle and impotence resulting from significant loss or disruption of social status, identity, or hierarchical objectives). If the perception of defeat is not resolved, the likelihood of transitioning to a perception of entrapment (when the motivation to escape the threat or stress is blocked, externally or internally, by lack or low likelihood of individual agency, or rescue by others) increases. According to the IMV, the most proximal variable to suicidal ideation/intention is entrapment. The transition from entrapment to suicidal ideation/intention is regulated by a set of

motivational moderators. The presence or absence of these moderators increases or decreases the likelihood of passing from entrapment to suicidal ideation/intention.

A specific assumption of the IMV is that the relationship between entrapment and suicidal ideation/intention is regulated by PB and TB. In order to test the moderating effect of both interpersonal needs, Forkmann and Teismann (2017) conducted a study with 480 online participants recruited from local universities, outpatient psychotherapy units and social media of whom 8.5% had attempted suicide at least once in their lifetime, and 29.6% reported suicidal ideation during the last two weeks. They performed four multiple regression models using suicidal ideation as a criterion. The first model included both interpersonal needs (PB and TB). The two were statistically significant. In the second model, they included entrapment. PB remained statistically significant, but TB did not. However, entrapment proved to be a predictor of suicidal ideation in the presence of both interpersonal needs. Then they tested whether PB (model 3) and TB (model 4) moderated the relationship between entrapment and suicidal ideation/intention. The results did not support the moderating effect of frustration of the interpersonal needs examined separately in either case. Later, O'Connor and Kirtley (2018) pointed out that, theoretically, the three-way interaction (PB x TB x Entrapment) acts as a motivational moderator better than the two-way interactions (PB x Entrapment and TB x Entrapment) independently. That is, the moderating effect of the frustration of interpersonal needs independently may be insufficient to modulate the step from entrapment to suicidal ideation/intention and only high levels of PB and TB together could generate this moderating effect.

This study attempts to expand the findings of Forkmann and Teismann through its two objectives. First, replicate their results, and second, analyse the moderating role of the interaction between PB and TB on the relationship between entrapment and suicidal ideation/intention, as proposed by O'Connor and Kirtley (2018). Our hypothesis is that PB,

but not TB, will bolster the relationship between entrapment and suicidal ideation/intention. Despite the findings of the Forkmann and Teismann study, this hypothesis is based on previous findings that position PB as a variable more strongly related to suicidal ideation than TB. Similarly, we will explore the three-way interaction (PB x TB x Entrapment) that, according to our hypothesis, will be statistically significant and which will strengthen the relationship between entrapment and suicidal ideation/intention in line with the theoretical assumption of IMV.

Materials and Methods

Participants

The sample, which was made up of 644 residents in Spain recruited from the general population (51.2% female; $M_{\text{age}} = 25.91$, $SD_{\text{age}} = 5.14$; age range: 18-35), participated in an online survey. Sample selection was by quota sampling by age, sex and education level, according with the composition of the Spanish young adult population.

Procedure

The participants were recruited by research team collaborators following quotas: 33% (50% women) aged 18 to 23, 33% (50% women) aged 24 to 29, 33% (50% women) aged 29 to 35, and a minimum of 33% and a maximum of 50% university graduates. Data was collected through *LimeSurvey* online survey tool. Neither collaborators nor participants received any economic incentive for their participation. All the participants were informed of the purpose of the study, the mechanisms guaranteeing their anonymity, and that their participation was voluntary. The participants gave their consent through an online click. This study was approved by the Bioethics Committee in Human Research of the University of the authors (Ref:UALBIO2018/018).

Measures

The online questionnaire included scales measuring psychological variables related to suicidal behavior and sociodemographic questions of interest such as age, sex, education and marital status.

Entrapment Scale (ES; Gilbert & Allan, 1998)

This self-administered 16 item scale measures the perception of being trapped. Answer choices are on five-point Likert-type scale, from 0 (*not at all like me*) to 4 (*extremely like me*). The higher the score, the greater the perception of being trapped. The Spanish version of the ES (Ordóñez-Carrasco et al., 2019) has a good internal consistency ($\alpha = .94$). In this study, the internal consistency of the ES scores was .96. Similarly, the omega reliability coefficient was $\omega = .96$.

Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012)

This is a self-administered questionnaire composed of two scales, one for perceived burdensomeness (PB) with six items, and another for thwarted belongingness (TB) with four items. Both are answered on a seven-point Likert-type scale, from 1 (*not at all true for me*) to 7 (*very true for me*). The higher the score on each scale, the stronger frustration of interpersonal needs is. The Spanish version (Ordóñez-Carrasco et al., 2018) of both INQ scales had a good internal consistency ($\alpha = .92$ for PB; $\alpha = .80$ for TB). In this study, $\alpha = .95$ for PB; $\alpha = .83$ for TB, and $\omega = .95$ for PB and $\omega = .85$ for TB.

Active Suicidal Ideation/intention

This variable was evaluated by the sum of two items. The participants had to answer the extent of their agreement with the following statement: "*I would like to kill myself*" and "*I would kill myself if I had the chance*". The answer to both items is rated on a five-point Likert-type scale, from 1 (*totally disagree*) to 5 (*totally agree*). In order to obtain concurrent validity evidence, this indicator was correlated with item 9 of the BDI-II (this item assesses the intensity and presence of suicidal ideation). The result was .52, $p < .001$.

Statistical Analyses

First, bivariate correlations between all variables were calculated. For multiple linear regression analysis (MLR), scale scores were centered to reduce multicollinearity between the main effect and interaction terms ($VIF < 5$). The independent variables (IVs) were centered by subtracting the average of the total scores of each IV from each total score for entrapment, perceived burdensomeness, and thwarted belongingness. Then three MLR models were performed with suicidal ideation as a dependent variable. Model 1 included entrapment, PB and TB scores as the IVs. After that, in model 2, the interaction variables PB x entrapment, TB x entrapment and PB x TB were entered. Lastly, model 3 included the three-way interaction PB x TB x entrapment. There is a moderating effect if the interaction variables are statistically significant ($p \leq .05$). All the analyses were processed using SPSS statistical package v.25 (except Omega coefficients which were performed with JASP v.0.10.2.0). No a priori power calculation was performed.

Results

The final sample was 644 participants since there were no missing data. The correlation matrix showed positive, low-moderate and statistically significant associations ($p \leq .001$) between all the studied variables. Descriptive statistics and correlation matrix can be seen in Table 1.

[Table 1 near here]

In the MLR, in model 1 ($adjusted R^2 = .46$), where both interpersonal psychological needs and entrapment were entered, PB ($\beta_{PB} = .54$) and entrapment ($\beta_{entrapment} = .16$) showed a statistically significant effect on suicidal ideation/intention ($p < .001$), but not TB ($\beta_{TB} = .05$). In order to replicate the results in the Forkmann and Teismann study (2017), the PB x entrapment, TB x entrapment and PB x TB interaction variables were introduced in model 2 ($adjusted R^2 = .51$). The effects of PB x entrapment ($\beta_{PBxEntrapment} = .37$) and PB x TB ($\beta_{PBxTB} =$

-.09) on suicidal ideation were statistically significant ($p < .001$ and $p = .037$ respectively). Finally, the PB x TB x entrapment interaction variable was entered in model 3 (*adjusted R*² = .51) and showed a statistically significant effect on suicidal ideation ($\beta_{PBxTBxEntrapment} = -.11$; $p = .026$). All MLR models are shown in Table 2. Figure 1 shows a graphical representation of the interaction effects of PB x TB x entrapment based on the procedures of Dawson and Richter (2006).

[Table 2 near here]

[Figure 1 near here]

Discussion

The present study provides the first favourable empirical evidence of the specific theoretical IMV assumption (O'Connor & Kirtley, 2018), which considers frustrated interpersonal needs as moderators on the relationship between entrapment and suicidal ideation/intention. First, the contribution to explain suicidal ideation/intention by interpersonal psychological needs (PB and TB) and entrapment was analyzed. Our results showed that PB and entrapment, but not TB, were relevant factors to explain suicidal ideation/intention. These findings are consistent with the network analysis study by De Beurs et al. (2019) which found that PB and entrapment were the most relatively important risk factors in the network (i.e., the unique variance each of the predictors shared with current suicidal ideation). Concerning TB, a systematic review by Ma et al. (2016) showed that in 60% of the studies analyzed, TB was statistically non-significant in predicting suicidal ideation/intention, probably due to the stronger effects of PB and other covariates.

In relation to our first goal, the relationship between entrapment and suicidal ideation/intention was influenced by PB, increasing the strength of the entrapment-suicidal ideation/intention relationship when PB was high. This contrast with those of Forkmann and

Teismann (2017), who found no evidence to support the moderating effect of either PB or TB. The discrepancy of results between the two studies may be due to sample characteristics and the measure of suicidal ideation. In Forkmann and Teismann's study (2017), the participants were in the age range of 18-80 years old. In addition, the sample was not community-based, but participants were recruited from local universities, social media, and psychotherapy outpatient units. In ours, the sample is limited to young adults (18-35 years old) recruited from the general population. In both studies, the instruments for measuring suicide ideation are different. In our case, the measure of active suicidal ideation is composed of two items. An ad hoc measure due to the limited self-administered instruments available for measuring suicidal ideation/intention adapted to the Spanish context. Instead, they use four-item Depressive Symptom Index (DSISS) suicide subscale, which could cause undesirable variability due to the broad spectrum of constructs related to suicide included in the measurement.

Finally, according to the specific theoretical assumption of IMV (O'Connor & Kirtley, 2018), this study tested whether PB x TB x entrapment interaction would show a statistically significant effect on suicidal ideation/intention. The results are consistent with the theoretical approach of the moderating role of PB x TB as an enhancer of the entrapment-suicidal ideation/intention relationship. TB bolsters the relationship between entrapment and suicidal ideation/intention, even though PB is low, as long as the perception of entrapment is high. However, the most significant potentiating effect of TB occurs when it interacts with a high PB and entrapment. Thus, TB does not contribute to increased suicidal ideation/intention when entrapment is low (as does PB), but our results confirm that TB does contribute to increased suicidal ideation/intention especially in the presence of a high PB and entrapment. This finding is consistent with the study by Wilson et al. (2016) in which, although TB was not a significant predictor of suicidal ideation, PB x TB interaction did show statistical

significance in predicting suicidal ideation in patients with chronic pain when TB interacted with high PB. This suggests that both interpersonal needs can be dynamic and interrelated (Czyz et al., 2015), that is to say, TB is not necessarily a primary risk factor, but may be involved in an increase in the severity of suicidal ideation/intention in people who already perceive themselves to be trapped and a burden to themselves or others.

A limitation of the study is its cross-sectional design, which does not allow us to detect any variation in the variables over time. Despite this, our main objective was to test interaction of the variables, so that design does not affect the interpretation of our results. Another limitation is that the sample was from the general population, which could have produced a floor effect on suicidal ideation and the rest of the clinical variables linked to suicidal ideation. In future studies, longitudinal designs and the use of clinical samples could provide new empirical evidence on the IMV assumptions.

Conclusion

The present study has provided empirical evidence of the relevant moderating role of PB and TB in the entrapment-suicidal ideation/intention relationship in young adult population. The main finding has been consistent with the specific assumption of IMV (O'Connor & Kirtley, 2018) that integrates the key elements of IPTS (PB and TB; Joiner, 2005) as motivational moderators of the model. This result is consistent with other studies that position PB and TB as moderators between suicidal risk factors (e.g., pain) and suicidal ideation (e.g., Chu et al., 2016; Hirsch et al., 2016). In essence, entrapment and interpersonal needs are therapeutic targets that could benefit from psychological treatments (e.g., Interpersonal Therapy) aimed at improving the quality of interpersonal relationships and, therefore, reducing the perception of entrapment, feelings of being a burden and the perception of frustrated belonging (e.g., Beckner et al., 2010).

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None.

Declaration of Interest Statement

No potential conflict of interest was reported by the authors.

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Table 1

Means, standard deviations and correlations between perceived burdensomeness, thwarted belongingness, entrapment and active suicidal ideation/intention

	Entrapment	Perceived burdensomeness	Thwarted belongingness	Suicidal ideation
Entrapment	-	.69*	.18*	.41*
Perceived burdensomeness	-	-	.17*	.49*
Thwarted belongingness	-	-	-	.22*
Mean	11.83	10.93	12.60	2.50
Standard deviation	13.67	7.39	5.84	1.28

Note: Spearman's Rho correlation coefficients * $p < ,001$.

Table 2

Results of the multiple regression analyses predicting suicidal ideation/intention

	Model 1				Model 2				Model 3			
	<i>B</i>	β	<i>t</i>	<i>p</i>	<i>B</i>	β	<i>t</i>	<i>p</i>	<i>B</i>	β	<i>t</i>	<i>p</i>
Intercept	2.503	-	67.239	< .001	2.310	-	54.294	< .001	2.295	-	53.484	< .001
Burdensomeness (PB)	0.093	0.538	12.060	< .001	0.060	0.345	6.908	< .001	0.059	0.339	6.798	< .001
Belongingness (TB)	0.011	0.050	1.684	.093	0.011	0.050	1.733	.084	0.022	0.098	2.738	.006
Entrapment (E)	0.015	0.158	3.538	< .001	0.006	0.060	1.347	.178	0.005	0.053	1.193	.233
PB x E					0.003	0.368	8.406	< .001	0.003	0.339	8.714	< .001
TB x E					0.001	0.073	1.655	.098	0.002	0.097	2.134	.033
PB x TB					-0.003	-0.094	-2.086	.037	-0.001	-0.046	-0.928	.354
PB x TB x E									0.000	-0.108	-2.236	.026
	Adj. R² = 0.456				Adj. R² = 0.510				Adj. R² = 0.513			
Model	<i>F</i>(3, 640) = 180.723				<i>F</i>(6, 637) = 112.509				<i>F</i>(7, 636) = 97.756			
	<i>p</i> < .001				<i>p</i> < .001				<i>p</i> < .001			
R² Change	-				+0.056				+0.004			
Sig. F Change	-				<i>p</i> < .001				<i>p</i> = .026			

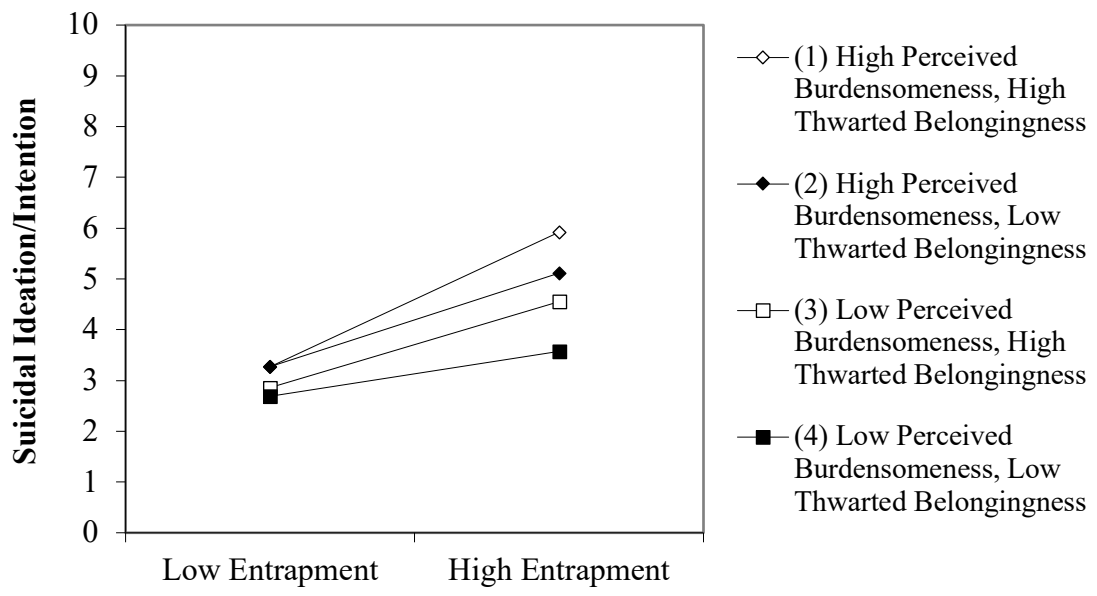


Figure 1

Figure Caption

Figure 1. Three-way interaction effect (model 3)