

## **Interpersonal Theory of Suicide and stressful life events in a clinical sample of adolescents in Spain**

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### **Abstract**

**Aims:** The Interpersonal Theory of Suicide (ITPS) provides a theoretical model for suicidal behavior. It includes two interpersonal variables, Thwarted Belongingness (TB) and Perceived Burdensomeness (PB). This study tested the relationship between ITPS interpersonal variables and suicide risk (presence/absence of suicidal ideation and suicide attempts throughout life) in a clinical sample of Spanish adolescents. We also assessed the potential mediation effect of these variables in the well-established relationship between stressful life events (SLE) and suicide risk.

**Methods:** We recruited 147 adolescents aged 11-17 from the Child and Adolescent Mental Health Outpatient Services of the Jiménez Díaz Foundation (Madrid, Spain). Different questionnaires were administered to assess suicidal behavior and SLE (SITBI, The Stressful Life Events Scale) and to calculate proxy measures for ITPS interpersonal factors (SDQ, STAXI-NA, CDI).

**Results:** TB and PB significantly correlated with suicide risk. PB played a mediating role in the relationship between SLE and suicide risk: adolescents reporting SLE were more likely to enact suicide behaviors when they experienced higher PB. Patients scoring higher PB were more likely to receive more intense treatment but tended to abandon intervention promptly.

**Conclusions:** ITPS seems useful for predicting suicide risk in an adolescent clinical sample. The results suggest an important role for PB in the SLE-suicide risk relationship and may impact the treatment process. Our exploratory findings should be addressed in future studies.

**Keywords:** Interpersonal Theory; Suicide; Thwarted Belongingness; Perceived Burdensomeness; Stressful Life Events; Adolescents.

## **Introduction**

Suicidal behavior is a serious public health problem and a major cause of death among adolescents (Kokkevi et al., 2012; Picazo-Zappino, 2014), who also report high rates of suicidal ideation and suicide attempts (Fonseca-Pedrero et al., 2018; Wasserman et al., 2015). Mental health problems in adolescents are an established risk factor for suicidal thoughts and behaviors (Park et al., 2013), but so are other variables such as stressful life events (SLE) (e.g., family or close friend serious illness or injury, experiencing serious problems with neighbors, friends or relatives, etc) (Selaman et al., 2014; Wang et al., 2012). Thus, more research is needed (Polanco-Roman et al., 2016) to build an integrated view of the potential mechanisms underlying suicidal behavior, going beyond associations between single variables and suicidal behavior outcomes. This knowledge could identify specific targets and critical variables to intervene in order to improve current clinical practice guidelines.

The Interpersonal Theory of Suicide (ITPS, Joiner, 2005) provides a theoretical model for the evidence-based risk factors explaining suicidal behavior. It highlights the interaction of certain variables, suggesting specifically that the highest-risk form of suicidal desire follows the simultaneous presence of two interpersonal constructs: thwarted belongingness (TB), the experience of loneliness/isolation, and perceived burdensomeness (PB), the perception of being a burden on others. Despite this suggested link between suicidal ideation and the interaction between these two interpersonal variables, some authors have identified a greater significance when TB and PB are integrated into separate models (Espinosa-Salido et al., 2021). For example, some authors that studied the influence of TB and PB in the relationship between insomnia and a propensity toward suicide have reported a greater influence by TB (e.g., Chu et al., 2017). However, in depressive symptoms, social constructs, and personality it has been recorded a greater indirect influence by PB (e.g., Cole et al., 2013). Furthermore, the theory includes the “acquired capability” construct, representing the individual’s habituation to self-harm through prior non-suicidal self-injury (NSSI) behaviors, suicidal behaviors, or other risk behaviors. This capability of engaging in suicidal behavior is separate from the desire to engage in it. According to ITPS, the

greatest risk for suicide would be conferred by the simultaneous presence of thwarted belongingness, perceived burdensomeness, hopelessness in relation to both, and acquired capability for lethal self-injury. These three conditions, when present simultaneously, would be sufficient to result in lethal (or near lethal) suicide attempts. However, some authors have posited that the simultaneous presence of the theory's constructs is sufficient, but not necessary, for suicidal behavior to occur, so other pathways to suicidal behaviors could be possible (Van Orden et al., 2010).

Despite some limitations (Hjelmeland & Loa Knizek, 2020), the ITPS has been widely tested and supported (Ma et al., 2016). However, most studies were cross-sectional, few were conducted among adolescents, and little research has been carried out outside the United States and Canada (Barzilay et al., 2019). Although cross-cultural generalizability of ITPS among Spanish speaking population have been tested (Hsieh et al., 2022; Hurtado et al., 2019) and the association between TB and PB and the frequency of lifetime non-suicidal self injury behaviors has been studied in adolescents students in Spain (Marco et al. 2021), no previous clinical studies assessing the relationship between the ITPS' interpersonal variables and suicide risk have been conducted in a clinical sample of adolescents in our country.

Meanwhile, severely stressful life events (SLE; e.g., childhood abuse) have been associated with elevated risk of lethal suicidal attempts, yet little research has been conducted on this variable's role (Van Orden et al., 2010), specifically its relationship with TB and PB. Considering previous data, the objectives of this study were: (1) to assess the relationship between the ITPS' interpersonal variables (PB and TB) and suicide risk in a clinical sample of Spanish adolescents, (2) to examine if there is any mediation effect of these variables in the well-established relationship between SLE and suicide risk, (3) to test if ITPS constructs could have any influence on some aspects of the clinical care process (e.g., number of clinical appointments).

## **Methods**

### **Sample**

As part of a larger research project, from September 2011 to October 2012, we recruited 267 patients being evaluated for the first time at the Jimenez Diaz Foundation's Child and Adolescent Mental Health Outpatient Services (Madrid, Spain) who fulfilled the inclusion criteria: patient age (11–17) and patients' and parents' ability to comprehend the questionnaires used. As previously published (Caro-Cañizares et al.,

2018), analyses comparing the excluded and included patients found no differences in primary psychosocial characteristics. For the present study, all those who had turned 18 by 2016 were selected. The final sample comprised 147 participants. The main diagnoses at the moment of the assessment included: depressive disorders, anxiety disorders, adjustment disorders, obsessive compulsive disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, eating disorders, pervasive developmental disorders, mental retardation, learning disorders, and tic disorders. On December 31<sup>st</sup>, 2016, all participants' clinical histories were checked to collect follow-up data.

The study was approved by the Ethics Committee of the Jiménez Díaz Foundation (Madrid, Spain). Written informed consent was obtained from patients and parents or legally authorized representatives.

## **Instruments**

All adolescents were clinically assessed by experienced psychiatrists and completed the following study questionnaires:

- The Spanish version of the Self-Injurious Thoughts and Behaviors Interview, SITBI (García-Nieto et al., 2013; Nock et al., 2007), a structured interview assessing suicidal ideation, suicidal plans, suicidal gestures, suicide attempts, NSSI thoughts, and NSSI behaviors. For each element, questions are asked about its existence throughout life. If the answer is affirmative, information is collected regarding: the frequency throughout life, the past year and the past month; the age of onset; the severity and the methods used. The Spanish version of the SITBI shows good psychometric properties, e.g., inter-exam reliability ( $k$  ranges from 0.9 to 1), test-retest reliability ( $k$  ranges from .91 to .87), and construct validity ( $k=.99$ ) (García-Nieto et al., 2013).
- The Spanish version of the Adolescent-Rate Strengths and Difficulties Questionnaire, SDQ (Goodman, 1997), a 25-item Likert-type scale comprising five subscales (emotional symptoms, behavioral problems, hyperactivity, peer relationship problems, and prosocial behaviors, regarding the last six months). This questionnaire possesses fair reliability and good criterion and convergent validity studied on Spanish sample (Gómez-Beneyto et al., 2013). SDQ total score range: 0-50, and 1-30 in this sample.

- The Spanish version of the State-Trait Anger Expression Inventory for child and adolescent populations, or STAXI-NA (Spielberger et al., 2009), a 32-item Likert-type scale comprising three subscales that assess how the subject is feeling at the present moment, how the subject usually feels, and how the subject usually reacts when angry. Anger is assessed as a state and as a trait. This instrument shows acceptable reliability and consistency studied on Spanish sample (Spielberger et al., 2009). STAXI-NA total score range:32-96, and 41-89 in this sample.
- The Spanish adaptation of the Children's Depression Inventory, CDI (Kovacs, 2004), a 27-item inventory comprising two subscales (self-esteem and dysphoria) and a global score for depression, assessing symptoms regarding the last two weeks. The internal consistency of the test, assessed on a Spanish sample through Cronbach's  $\alpha$ , was .81. The test-retest reliability, with an interval of 4 weeks, on Spanish sample was  $r = .70$  (Del Barrio et al., 1999). CDI total score range: 0-56, and 0-36 in this sample
- The Stressful Life Events Scale (Oliva et al., 2008): Adolescents answered whether any of 29 listed negative events had occurred in their lives over the last three years. Each item related to an event was scored as 1 if the event had occurred and 0 otherwise. Total scores were calculated by summing the 29 items. Evidence of the scale's validity on Spanish sample can be found in Oliva et al. (2008). SLE total score range: 0-29, and 0-24 in this sample.

Semi-structured interview developed specifically for this research elicited demographic data, including age, sex, ethnicity, cohabitation status, socioeconomic level, and academic performance.

The follow-up variables collected on December 31<sup>st</sup>, 2016 were: total number of clinical appointments up to that date, length in days of follow-up, and whether the patient had been transferred to adult mental health outpatient services.

### **Data analysis**

Proxy measures for the interpersonal factors were composed and calculated from the questionnaire results using a four-step procedure. First, after the items' contents were analyzed, those related to the TB and PB constructs were selected attending to the bifactorial distribution of each of the two constructs. Second, selected items were

discarded if they did not contribute to improve the internal consistency of the scale according to Cronbach's  $\alpha$  index, when comparing to the other TB/PB selected items. Third, we tested the measures' structural validity using exploratory factor analyses and those items with low factorial weight were likewise eliminated. Finally, the factor analyzes were repeated to study the goodness of fit. Several goodness of fit indices (RMSEA,  $\Delta\chi^2$ , and  $R^2$ ) were calculated for each candidate model. The goodness of fit of a given model was considered acceptable if RMSEA was below 0.08 and good if RMSEA was below 0.05. The increase in goodness of fit obtained by adding factors to the model was assessed by  $\Delta\chi^2$  significance tests and the increment of the % of the variance explained ( $R^2$ ).

Suicide risk was assessed by adding up the answers to SITBI subscale questions on the presence/absence of suicidal ideation and on the presence/absence of suicide attempts throughout life.

The relationship between the study variables was explored via Pearson correlation. Linear regression analyses were applied to the specific relationship between the interpersonal factors (TB and PB) and suicide risk. Covariates were sex and SLE, as were the variables that showed significant correlation.

Mediation models were developed to test the role of interpersonal factors (TB and PB) as mediation variables in the relationship between SLE and suicide risk. The mediation models were analyzed through bootstrap sampling methods. Bootstrapping is a nonparametric approach to test hypotheses without making assumptions about the shape of the distribution. It is obtained by taking many samples with replacements of size  $n$  from the data, where  $n$  is the original sample size (Preacher & Hayes, 2004). Our study took 5,000 bootstrap samples on each calculation.

Once developed, a mediation model requires a formal test to determine the presence of a mediation effect (Holmbeck, 2002). The Sobel test, though often used, has limitations, especially when applied in small samples (Preacher & Hayes, 2004). Therefore, we studied the indirect effects via bootstrapping procedures, examining the independent variable (SLE) and potential mediators (TB and PB) as continuous measures.

Finally, we applied correlation and linear/logistic regression analyses to the specific relationship between the interpersonal factors (TB and PB) and the follow-up variables. For these analyses age was included as a covariate.

Data analyses were performed by IBM SPSS Statistics 20. Results were considered significant when  $p < 0.05$  in the corresponding null hypothesis test.

## Results

### Proxy measures

Thwarted belongingness (TB) was assessed using an aggregated score derived from four items of the CDI and two items of the SDQ (Table 1). Cronbach's  $\alpha$  for this scale was 0.76. Exploratory factor analyses showed a mediocre fit for the one-factor model ( $\chi^2(9) = 18.33$ ,  $p = .032$ ; RMSEA = 0.0925), and an excellent fit for the two-factor model ( $\chi^2(4) = 4.74$ ,  $p = .315$ , RMSEA = 0.039). The three-factor model was not contemplated because, since there were not enough degrees of freedom, it was not identifiable and, therefore, a unique solution cannot be reached for it, and goodness of fit cannot be assessed. Adding a second factor significantly improved the fit of the one-factor model ( $\Delta\chi^2(1) = 13.59$ ,  $p = .018$ ; % variance explained = 37.67 by the one-factor model, and 47.50 by the two-factor model), confirming that the proxy measure used for TB shows the two-factor structure as described in the literature (Van Orden et. al, 2010). Table 1 shows the pattern matrix with the factor loadings of each item after performing an oblique rotation.

Perceived burdensomeness (PB) was assessed using an aggregated score derived from three CDI items, and four STAXI items (Table 2). Cronbach's  $\alpha$  was 0.74. Exploratory factor analyses showed mediocre fit for the one-factor model ( $\chi^2(14) = 39.52$ ,  $p < .001$ ; RMSEA = .120; % variance explained = 32.51), and a good fit for the two-factor ( $\chi^2(8) = 10.49$ ,  $p = .233$ , RMSEA = .049; % variance explained = 48.001). The three-factor model was not contemplated because, since there were not enough degrees of freedom, it was not identifiable and, therefore, a unique solution cannot be reached for it, and goodness of fit cannot be assessed. Adding a second factor significantly improved the fit ( $\Delta\chi^2(6) = 29.03$ ,  $p < .001$ ) over the single-factor model confirming that the proxy measure for PB shows the two-factor structure as described in the literature (Van Orden et. al, 2010). Table 2 shows the pattern matrix with the factor loadings of each item after performing an oblique rotation.

### Sample features

The final sample (Table 3) consisted of 147 participants (61.2% males) aged 11-17 years ( $M = 15.34$ ,  $SD = 1.32$ ). Most were Caucasian ( $n = 128$ , 87.1%), lived with their

family of origin (n=126, 85.7%), and lived in a family with over 2,000 Euros/month in income (n=60, 56.6%). The main diagnoses at the moment of the first evaluation corresponded to externalizing disorders (n=89, 60.5%) which include oppositional defiant disorder and attention-deficit/hyperactivity disorder. Emotional disorders (which includes Major Depressive Disorder and other mood disorders) were in second place (n=19, 12.9%). Regarding suicidal thoughts and behaviors, 25.9% of the sample reported presence of suicidal ideation (n= 38), 6.8% reported suicide attempts (n=10), and 29.9% (n=44) reported non-suicidal self-injury behaviors at least once in his life.

### **Regression studies**

Table 4 shows Pearson correlation results. The linear regression model (Table 5) examining the relationship between suicide risk and the interpersonal variables (TB and PB) was significant and remained significant after adding SLE and sex ( $F(4)=12.035$ ,  $p<.001$ ). The model predicts 29.9% of the variance of suicide risk ( $R^2=.299$ ).

### **Mediation analysis**

We developed the mediation model following standard methods via bootstrapping. The results do not support a relationship model between SLE and suicide risk mediated by TB, since the direct effect of TB (potential mediator) on suicide risk is not significant ( $t=1.4624$ ,  $p=.146$ ). However, for the relationship between SLE and suicide risk, the PB mediation model is maintained (Figure 1). Studying the indirect effect via bootstrapping supports the mediation model as the indirect effect is significantly different from zero at  $p<.05$  (0.066, 95% CI [ 0.0129 - 0.175]).

### **Follow-up studies**

Correlation analyses between interpersonal variables and follow-up variables were performed to determine whether a relationship exists (Table 6). Total number of clinical appointments during the four years significantly correlated with suicide risk (0.180,  $p=.031$ ). Length of follow-up in days significantly correlated with PB (-0.232,  $p=.009$ ). However, being transferred to adult mental health services did not correlate with any of the interpersonal variables. After linear regression analyses between those variables with significant correlation and controlling for the effect of age, all remained significant (Table 7).



## Discussion

This study assessed the relationship between the ITPS' interpersonal variables (PB and TB) and suicide risk in a clinical sample of adolescents in Spain. It examined the potential mediation effect of these variables in the well-established relationship between SLE and suicide risk. It then analyzed certain follow-up variables to determine the potential influence of the ITPS constructs.

We found higher rates of reported suicide attempts than for other Spanish samples (Bousoño Serrano et al., 2017; Fonseca-Pedrero et al., 2018). Unlike previous studies, which analyzed suicide in a general population, we assessed a clinical sample, where higher suicidal behavior rates may be expected since they are well-established among individuals with mental health disorders (Bedoya Cardona et al., 2016). Worth noting here is that little research has been conducted with clinical outpatient samples (Díaz de Neira et al., 2015).

Our results showing that PB and TB were associated with suicide risk among Spanish adolescents are similar to those found in other studies with adolescents conducted in other countries and also consistent with findings among adolescents in Spain (Marco et al., 2021). Like previous researchers, we found that SLE and ITPS interpersonal variables significantly correlated with suicide risk. The model predicted 29.9% of the variance of suicide risk, similar to previous studies on adolescent populations (Barzilay et al., 2015).

Both PB and TB have been shown to be independent predictors of suicidal ideation and suicide risk in a number of different samples, including clinical outpatients (Van Orden et al., 2006). Nevertheless, a systematic review of IPT studies found limited evidence for an interaction between PB, TB, and acquired capability in association with suicide attempts, which lead the authors to conclude that the relationships between the variables may be less straightforward than originally presented (Ma et al., 2016). We found that PB may play a mediating role in the SLE-suicide risk relationship. Our results support the hypothesis that adolescents who encounter SLE are more likely to enact suicide behaviors when experiencing higher PB, a mediating effect not found with TB. As previous research suggests (Espinosa-Salido et al., 2021), the difference between the SLE-PB relationship and the SLE-TB relationship underlines the importance of analyzing these interpersonal variables in separate models, since they may relate differently to suicidal behavior in combination with other risk factors. Our results are consistent with literature testing the ITP model in adolescents (Stewart et al.,

2017), where the role of PB in suicidal thoughts and behaviors seems well-established, while evidence regarding the role of TB has shown discrepant results (Cole et al., 2013; Hsieh, et al. 2022). According to Chu et al. (2017), is in the context of capability for suicide, but not individually, where TB may play a greater role as a predictor of suicidal thoughts and behaviors.

Our findings reveal the clinical importance of specifically exploring SLE and ITPS interpersonal variables. Also noteworthy is that the patient's interpersonal contexts include the therapeutic relationship (Kohlenberg & Tsai, 1991). Hence, clinicians should watch for emerging ITPS interpersonal variables within the clinical setting. Phrases like "I am bothering you... you may have other patients to listen to..." or "I am wasting your time" heard in therapy should be specifically addressed as potential indicators of PB.

Determining core variables that predict suicidal behavior seems crucial not only for designing prevention strategies but also when intervening with adolescents under treatment (e.g., to prevent clinical intervention abandonment) (Rodríguez-Blanco et al., 2021). Our results showed that PB was relevant within the follow-up study. Patients who scored high for PB were more likely to abandon intervention prematurely, perhaps because of their PB feelings (e.g., fear of burdening a therapist). Addressing the potential impact of therapeutic behaviors on patients could help therapists explore and intervene in these feelings, preventing treatment abandonment, maximizing clinical efficacy, and helping young people move forward.

Our findings present a series of limitations that should be addressed. Firstly, since our sample is not representative of the general adolescent population, the results require care in interpretation. It is also important to note that, to assess suicide risk, we used a composite measure of the variables "suicidal ideation" and "suicide attempts" from the SITBI. These two variables are known to have different contributions as suicide risk factors, so the constructed "suicide risk" variable may be biased. However, given the limitations of the sample due to the small number of suicide attempts collected and the specifically studied relationship between SLE and risk for suicidal thoughts and behaviors (Selaman et al., 2014; Wang et al., 2012), this composed variable seemed the proper way to assess suicide risk. Regarding ITPS assessment, we used proxy measures for the interpersonal factors calculated from the different questionnaires applied, not the measures specifically designed. Nonetheless, this practice has precedent and could extend the generalizability of the results beyond the

specific ITPS scales (Barzilay et al., 2015; Smith et al., 2012). Moreover, the results of our factorial analyses support the constructed proxy measures' validity for evaluating the constructs. Finally, Joiner's Interpersonal Theory, as an ideation-to-action theory of suicide, inspired a new generation of suicide theories, such as the Integrated Motivational-Volitional Model of Suicidal Behavior (O'Connor, 2011; O'Connor & Kirtley, 2018) and the Three-Step Theory (Klonsky & May, 2015). These theories also offer separate explanations for the development of suicidal ideation and the progression from suicidal ideation to attempts. However, given that our main objective was to test and validate ITPS in an adolescent sample in Spain we did not include factors of these theories in our study.

Despite the limitations, our preliminary study indicates interesting trends with important clinical implications, offering a guide for clinicians. Our findings are also the first to our knowledge to validate ITPS in a clinical sample with a Spanish adolescent population, and they shed light on some variables that should be carefully addressed to prevent behaviors that could interfere with treatment adherence. Future studies with larger samples, more specific measures, and exhaustive follow-ups could deepen our results.

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## **DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## References

- Barzilay, S., Feldman, D., Snir, A., Apter, A., Carli, V., Hoven, C. W., Wasserman, C., Sarchiapone, M., & Wasserman, D. (2015). The interpersonal theory of suicide and adolescent suicidal behavior. *Journal of Affective Disorders, 183*, 68-74. <https://doi.org/10.1016/j.jad.2015.04.047>
- Barzilay, S., Schuck, A., Bloch-Elkouby, S., Yaseen, Z. S., Hawes, M., Rosenfield, P., Foster, A., & Galynker, I. (2019). Associations between clinicians' emotional responses, therapeutic alliance, and patient suicidal ideation. *Depression and Anxiety*. <https://doi.org/10.1002/da.22973>
- Bedoya Cardona, E. Y., Montaña Villalba, L. E., Bedoya Cardona, E. Y., & Montaña Villalba, L. E. (2016). Suicidio y Trastorno Mental. *CES Psicología, 9*(2), 179-201. <https://doi.org/10.21615/cesp.9.2.12>
- Bousoño Serrano, M., Al-Halabí, S., Burón, P., Garrido, M., Díaz-Mesa, E. M., Galván, G., García-Álvarez, L., Carli, V., Hoven, C., Sarchiapone, M., Wasserman, D., Bousoño, M., García-Portilla, M. P., Iglesias, C., Sáiz, P. A., & Bobes, J. (2017). Uso y abuso de sustancias psicotrópicas e internet, psicopatología e ideación suicida en adolescentes. *Adicciones, 29*(2), 97. <https://doi.org/10.20882/adicciones.811>
- Caro-Cañizares, I., Díaz de Neira-Hernando, M., Pfang, B., Baca-Garcia, E., & Carballo, J. J. (2018). The Strengths and Difficulties Questionnaire - Dysregulation Profile, Non-Suicidal Self-Injury Behaviors and the Mediating Role of Stressful Life Events. *The Spanish Journal of Psychology, 21*, E22. <https://doi.org/10.1017/sjp.2018.23>
- Chu, C., Hom, M. A., Rogers, M. L., Stanley, I. H., Ringer-Moberg, F. B., Podlogar, M. C., Hirsch, J. K., & Joiner, T. E. (2017). Insomnia and suicide-related behaviors:

A multi-study investigation of thwarted belongingness as a distinct explanatory factor. *Journal of affective disorders*, 208, 153–162.

<https://doi.org/10.1016/j.jad.2016.08.065>

Cole, B.A., Wingate, R.L., Slish, I.M., Tucker, P.R., Hollingsworth, W.D. and O’Keefe, M.V. (2013). Burdensomeness, depression, and suicide in a sample of American-Indian college students. *Ethnicity and Inequalities in Health and Social Care*, 6(2-3), 77-86. <https://doi.org/10.1108/EIHSC-10-2013-0026>

Del Barrio, V., Moreno-Rosset, C. & López-Martínez, R. (1999). The Children’s Depression Inventory (CDI; Kovacs, 1992) in a Spanish sample. *Clínica y Salud*, 10 (3), 393-416

Díaz de Neira, M., García-Nieto, R., de León-Martínez, V., Pérez Fominaya, M., Baca-García, E., & Carballo, J. J. (2015). Prevalencia y funciones de los pensamientos y conductas autoagresivas en una muestra de adolescentes evaluados en consultas externas de salud mental. *Revista de Psiquiatría y Salud Mental - Journal of Psychiatry and Mental Health*, 8(3), 137-145.  
<https://doi.org/10.1016/j.rpsm.2013.09.003>

Espinosa-Salido, P., Perez, M. A., Baca-García, E., & Ortega, M. P. (2021). Systematic Review of the Indirect Relationships of Thwarted Belongingness and Perceived Burdensomeness in Suicide. *Clinical and Health*, 32(1), 29-36.  
<https://doi.org/10.5093/clysa2020a27>

Fonseca-Pedrero, E., Inchausti, F., Pérez-Gutiérrez, L., Aritio Solana, R., Ortuño-Sierra, J., Sánchez-García, M. <sup>a</sup> Á., Lucas-Molina, B., Domínguez, C., Fonseca, D., Espinosa, V., Gorriá, A., Urbiola-Merina, E., Fernández, M., Merina Díaz, C., Gutiérrez, C., Aures, M., Campos, M. S., Domínguez-Garrido, E., & Pérez de Albéniz Iturriaga, A. (2018). Suicidal ideation in a community-derived sample

- of Spanish adolescents. *Revista de Psiquiatría y Salud Mental (English Edition)*, 11(2), 76-85. <https://doi.org/10.1016/j.rpsmen.2018.02.008>
- García-Nieto, R., Blasco-Fontecilla, H., Paz Yepes, M., & Baca-García, E. (2013). Translation and validation of the «Self-injurious thoughts and behaviors interview» in a Spanish population with suicidal behaviour. *Revista De Psiquiatría Y Salud Mental*, 6(3), 101-108. <https://doi.org/10.1016/j.rpsm.2012.07.001>
- Gómez-Beneyto, M., Nolasco, A., Moncho, J., Pereyra-Zamora, P., Tamayo-Fonseca, N., Munarriz, M., Salazar, J., Tabarés-Seisdedos, R., & Girón, M. (2013). Psychometric behaviour of the strengths and difficulties questionnaire (SDQ) in the Spanish national health survey 2006. *BMC Psychiatry*, 13(1), 1-10. <https://doi.org/10.1186/1471-244X-13-95>
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal Of Child Psychology And Psychiatry, And Allied Disciplines*, 38(5), 581-586.
- Hjelmeland, H., & Loa Knizek, B. (2020). The emperor's new clothes? A critical look at the interpersonal theory of suicide. *Death Studies*, 44(3), 168-178. <https://doi.org/10.1080/07481187.2018.1527796>
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, 27(1), 87-96.
- Hsieh, C., Charak, R., Cano-Gonzalez, I., Gonzalez, L., Roley-Roberts, M.E., Hovey, J.D. (2022). Perceived burdensomeness and thwarted belongingness influence the childhood polyvictimization and suicide ideation association among

- Hispanic undergraduates. *Death Stud*, 46(8), 1792-1800. doi:  
10.1080/07481187.2020.1846227.
- Hurtado, G., Hovey, J.D., Dueweke, A.R. (2019). Examining Proximal Risk Factors for Suicide in a Sample of Mexican Adults in Rehabilitation Centers. *Suicide Life Threat Behav*, 49(1),183-192. doi: 10.1111/sltb.12419.
- Joiner, T. (2005). *Why People Die by Suicide*. Harvard University Press.  
<https://www.hup.harvard.edu/catalog.php?isbn=9780674025493>
- Klonsky, E. D., & May, A. M. (2015). The Three-Step Theory (3ST): A New Theory of Suicide Rooted in the “Ideation-to-Action” Framework. *International Journal of Cognitive Therapy*, 8(2), 114-129. <https://doi.org/10.1521/ijct.2015.8.2.114>
- Kohlenberg, R. J., & Tsai, M. (1991). *Functional Analytic Psychotherapy: Creating Intense and Curative Therapeutic Relationships*. Springer US.  
<https://doi.org/10.1007/978-0-387-70855-3>
- Kokkevi, A., Rotsika, V., Arapaki, A., & Richardson, C. (2012). Adolescents’ self-reported suicide attempts, self-harm thoughts and their correlates across 17 European countries. *Journal of Child Psychology & Psychiatry*, 53(4), 381-389.  
<https://doi.org/10.1111/j.1469-7610.2011.02457.x>
- Kovacs, M. (2004). *Inventario de depresión infantil(CDI)*. TEA.
- Ma, J., Batterham, P. J., Calear, A. L., & Han, J. (2016). A systematic review of the predictions of the Interpersonal-Psychological Theory of Suicidal Behavior. *Clinical Psychology Review*, 46, 34-45.  
<https://doi.org/10.1016/j.cpr.2016.04.008>
- Marco, .JH., Gallego-Hernández de Tejada, B., Guillén, V., Baños, R.M., Pérez, S. (2022). Meaning in Life Buffers the Association between Perceived Burdensomeness, Thwarted Belongingness, and Frequency of Non-Suicidal

Self-Injuries in Spanish Adolescents. *J Clin Med.*,10(21), 4867. doi:  
10.3390/jcm10214867

Nock, M. K., Holmberg, E. B., Photos, V. I., & Michel, B. D. (2007). Self-Injurious Thoughts and Behaviors Interview: Development, reliability, and validity in an adolescent sample. *Psychological Assessment*, 19(3), 309-317.  
<https://doi.org/10.1037/1040-3590.19.3.309>

O'Connor, R. C. (2011). Towards an Integrated Motivational–Volitional Model of Suicidal Behaviour. En R. C. O'Connor, S. Platt, & J. Gordon (Eds.), *International Handbook of Suicide Prevention* (1.<sup>a</sup> ed., pp. 181-198). Wiley.  
<https://doi.org/10.1002/9781119998556.ch11>

O'Connor, R. C., & Kirtley, O. J. (2018). The integrated motivational–volitional model of suicidal behaviour. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 373(1754), 20170268.  
<https://doi.org/10.1098/rstb.2017.0268>

Oliva, A, Jiménez, J., Parra, Á., & Sánchez-Queija, I. (2008). Acontecimientos vitales estresantes, resiliencia y ajuste adolescente. *Revista de Psicopatología y PsicologíaClínica*, 13, 53-62.

Park, S., Kim, C. Y., & Hong, J. P. (2013). Unnatural causes of death and suicide among former adolescent psychiatric patients. *The Journal Of Adolescent Health: Official Publication Of The Society For Adolescent Medicine*, 52(2), 207-211. <https://doi.org/10.1016/j.jadohealth.2012.05.018>

Picazo-Zappino, J. (2014). Suicide among children and adolescents: A review. *Actas Españolas de Psiquiatría*, 42(3), 125-132.

Polanco-Roman, L., Gomez, J., Miranda, R., & Jeglic, E. (2016). Stress-Related Symptoms and Suicidal Ideation: The Roles of Rumination and Depressive



Symptoms Vary by Gender. *Cognitive Therapy and Research*, 40(5), 606-616.

<https://doi.org/10.1007/s10608-016-9782-0>

- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers: A Journal of the Psychonomic Society, Inc*, 36(4), 717-731.
- Rodríguez-Blanco, L., Carballo-Belloso, J. J., de León, S., & Baca-García, E. (2021). A longitudinal study of adolescents engaged in Non-Suicidal Self Injury (NSSI): Clinical follow-up from adolescence to young adulthood. *Psychiatry Research*, 297, 113711. <https://doi.org/10.1016/j.psychres.2021.113711>
- Selaman, Z. M. H., Chartrand, H. K., Bolton, J. M., & Sareen, J. (2014). Which symptoms of post-traumatic stress disorder are associated with suicide attempts? *Journal of Anxiety Disorders*, 28(2), 246-251. <https://doi.org/10.1016/j.janxdis.2013.12.005>
- Smith, A. R., Ribeiro, J., Mikolajewski, A., Taylor, J., Joiner, T., & Iacono, W. G. (2012). An examination of environmental and genetic contributions to the determinants of suicidal behavior among male twins. *Psychiatry Research*, 197(1-2), 60-65. <https://doi.org/10.1016/j.psychres.2012.01.010>
- Spielberger, C. D., Del Barrio, V., & Aluja, A. (2009). *STAXI-NA. Inventario de Expresión de ira estado-rasgo en niños y adolescentes. Manual*. TEA Ediciones.
- Stewart, S. M., Eaddy, M., Horton, S. E., Hughes, J., & Kennard, B. (2017). The Validity of the Interpersonal Theory of Suicide in Adolescence: A Review. *Journal of Clinical Child & Adolescent Psychology*, 46(3), 437-449. <https://doi.org/10.1080/15374416.2015.1020542>

- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S., Selby, E. A., & Joiner, T. E. (2010). The Interpersonal Theory of Suicide. *Psychological review*, *117*(2), 575-600. <https://doi.org/10.1037/a0018697>
- Wang, Y., Sareen, J., Afifi, T. O., Bolton, S.-L., Johnson, E. A., & Bolton, J. M. (2012). Recent Stressful Life Events and Suicide Attempt. *Psychiatric Annals*, *42*(3), 101-108. <https://doi.org/10.3928/00485713-20120217-07>
- Wasserman, D., Hoven, C. W., Wasserman, C., Wall, M., Eisenberg, R., Hadlaczky, G., Kelleher, I., Sarchiapone, M., Apter, A., Balazs, J., Bobes, J., Brunner, R., Corcoran, P., Cosman, D., Guillemin, F., Haring, C., Iosue, M., Kaess, M., Kahn, J.-P., ... Carli, V. (2015). School-based suicide prevention programmes: The SEYLE cluster-randomised, controlled trial. *The Lancet*, *385*(9977), 1536-1544. [https://doi.org/10.1016/S0140-6736\(14\)61213-7](https://doi.org/10.1016/S0140-6736(14)61213-7)

Table 1. TB Pattern matrix of factor loadings after oblimin rotation

Item	Loadings	
	Factor 1	Factor 2
<i>I like to be with people</i>	0.425	0.224
<i>I never feel lonely</i>	0.407	0.490
<i>I have many friends</i>	0.999	-0.01
<i>Nobody loves me</i>	0.343	0.681
<i>I have a good friend all the time</i>	0.529	0.212
<i>People my age usually like me</i>	0.343	0.681

Table 2. PB Pattern matrix of factor loadings after oblimin rotation

Item	Loadings	
	Factor 1	Factor 2
<i>I do most things well</i>	0.547	0.02
<i>I hate myself</i>	0.825	-0.404
<i>I can never be as good as other children</i>	0.527	-0.078
<i>I usually say nasty things</i>	0.463	0.475
<i>When I am angry I show my anger</i>	0.382	0.608
<i>When I am angry I slam doors</i>	0.424	0.351
<i>When I am angry I argue</i>	0.460	0.680

Table 3. Main characteristics of the final sample

<i>Total sample</i>		N=147
		N(%), M, Sd
<i>Age (ranged from 11 to 17)</i>		147(100), 15.34, 1.316
		N(%)
<i>Sex</i>		147(100)
	Male	90(61.2)
	Female	57(38.8)
<i>Ethnicity</i>		137(93.2)
	Caucasian	128(87.1)
	Latin-American	1(0.7)
	Black	1(0.7)
	Gypsy	1(0.7)
	Others	6(4.1)
<i>Academic performance</i>		143(97.3)
	Repeated course YES	65(44.2)
<i>Adopted</i>		143(97.3)
	YES	13(8.8)
<i>Monthly income (€ per capita)</i>		106(72.1)
	>2500	33(22.4)
	2000-2500	27(18.4)
	1500-1999	18(12.2)
	500-1499	24(16.3)
	<500	4(2.7)
<i>Cohabitation status</i>		146(99.3)
	Family of origin	126(85.7)
	Other relatives	2(1.4)
	Adoptive family	13(8.8)
	Institution	4(2.7)
	Other	1(0.7)
<i>Clinical diagnoses</i>		146(99.3)
	Behavioral disorders	89(60.5)
	Emotional disorders	19(12.9)
	Anxiety disorders	16(10.9)
	Eating disorders	11(7.5)
	other	7(4.8)
	No diagnose	4(2.7)

Note: M: mean Sd: standard deviation. Behavioral disorders compress oppositional defiant disorder, and attention-deficit hyperactivity disorder. Emotional disorders include Major Depressive Disorder, and other mood disorders. Anxiety disorders include adjustment disorders, generalized anxiety disorder, panic disorder, phobias, separation anxiety disorder, and obsessive compulsive disorder. Eating disorders include: anorexia nervosa, bulimia nervosa, binge eating disorder, pica, rumination disorder, and other eating disorders in childhood and adolescence. Other compresses: pervasive developmental disorders, mental retardation, learning disorders, and tic disorders.

Table 4. Pearson Correlation between studied variables

	Sucide risk r( <i>p</i> )	Sex r( <i>p</i> )	Age r( <i>p</i> )	SLE r( <i>p</i> )	Twarthed belonginess r( <i>p</i> )	Perceived burdensomeness r( <i>p</i> )
Sucide risk	1.000	<b>0.385 (.000)**</b>	0.054 (.519)	<b>0.238 (.004)**</b>	<b>0.207 (.024)*</b>	<b>0.289 (.001)*</b>
Sex		1.000	0.134 (.105)	<b>0.186 (.024)*</b>	0.186 (.040)	0.114 (.202)
Age			1.000	-0.047 (.574)	-0.007 (.939)	0.082 (.360)
SLE				1.000	<b>0.299 (.001)*</b>	<b>0.285 (.001)*</b>
Twarthed belonginess					1.000	0.140 (.128)
Perceived burdensomeness						1.000

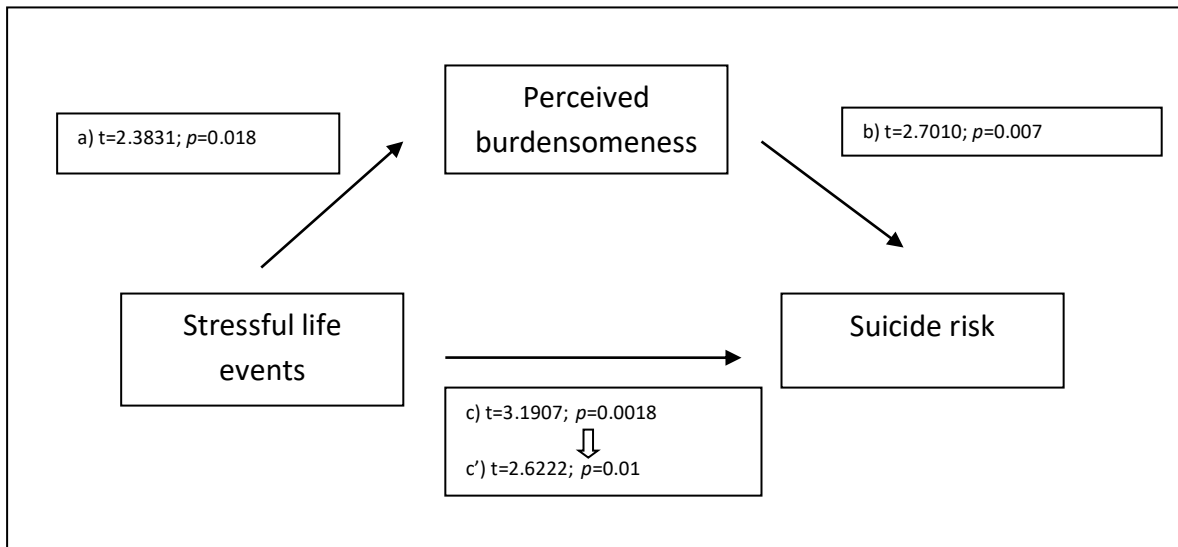
Note: Bold indicates \* $p < 0.05$ , \*\* $p < 0.001$ ; SLE: Stressful Life Events.

Table 5. Linear regression between interpersonal variables and suicide risk

	Suicide risk		
	F, df( <i>p</i> )	<i>r</i>	<i>R</i> <sup>2</sup>
Interpersonal variables	7.647, 2( <b>.001</b> )*	0.343	0.117
Interpersonal variables and SLE and sex as covariates	12.035, 4( <b>&lt;.001</b> )**	0.547	0.299

Note: Bold indicates \**p*<0.05, \*\**p*<0.001, SLE: Stressful Life Events.

Figure 1: Perceived Burdensomeness partially mediate the relation between Stressful life events and suicide risk.



N= 121. (a) = Correlation between the Independent Variable (Stressful life events) and the proposed mediator (Perceived burdensomeness); (b) = effect of the proposed mediator (Perceived burdensomeness) on the dependent variable (suicide risk), controlling for the independent variable; (c) = the total effect of the independent variable (Stressful life events) on the dependent variable (suicide risk), not controlling for the mediator; (c') = the effect of the independent variable (Stressful life events) on the dependent variable (suicide risk), controlling for the proposed mediator (Perceived burdensomeness).



Table 6. Correlation between interpersonal variables and follow up variables

	Number of clinical appointment	Length of follow up in days	Transferred to adult mental health service
	r(p)	r(p)	r(p)
Perceived Burdensomeness	0.162 (.070)	-0.232 ( <b>.009</b> )*	0.024 (.790)
Thwarted Belongingness	0.073 (.425)	-0.75 (.410)	-0.054 (.554)
Suicide risk	0.18 ( <b>.031</b> )*	-0.118 (.158)	0.70 (.400)

Note: Bold indicates \* $p < 0.05$ , \*\* $p < 0.001$

Table 7. Linear regression between interpersonal variables and follow up variables

	Number of clinical appointment			Length of follow up in days		
	B	t	p	B	t	p
PB				-0.933	-2.667	<b>.009</b> *
PB controlling for age				-0.989	-2.821	<b>.006</b> *
Suicide risk	4.468	2.185	<b>.031</b> *			
Suicide risk controlling for age	4.820	2.322	<b>.022</b> *			

Note: Bold indicates \* $p < 0.05$ , \*\* $p < 0.001$ ; PB: Perceived Burdensomeness