

The Role of Transdiagnostic Variables Within Gender Differences in Adolescents' Self Reports of Suicidal Ideation and Suicide Attempts

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Abstract

Background: The incidence of suicide attempts peaks during adolescence, with adolescent girls having a higher rate of attempts than boys. Depression is one of the main risk factors of suicidal behaviour and yet not all adolescents with suicidal ideation or attempting suicide have a diagnosable depressive disorder. The present study examined the unique contributions to suicidal ideation and attempting suicide of cognitive processes known to be associated with depression and anxiety, but which are also transdiagnostic: anomalous perception of reality, intolerance of uncertainty, and rumination. **Method:** 605 adolescents ($M=13.22$, $SD=1.03$, 47% girls) were evaluated in a cross-sectional study. **Results:** Multiple linear regression showed that the anomalous perception of reality and intolerance of uncertainty were uniquely associated with the severity of suicidal ideation, even when accounting for symptoms of depression and anxiety, but only amongst girls. In a logistic regression, self-reported depression symptoms, and not underlying cognitive processes, predicted the likelihood of a person having attempted suicide versus not having done so. **Conclusions:** In adolescent girls, less frequently evaluated transdiagnostic variables may have an important impact on suicidal ideation. However, depression symptoms, and not these transdiagnostic variables, seem to be the greatest contributor to attempting suicide.

Keywords: Gender differences, anomalous perception of reality, intolerance of uncertainty, suicidal ideation, adolescence, depression.

Resumen

Variables Transdiagnósticas y Diferencias de Género en la Ideación y el Intento Suicida Adolescente. **Antecedentes:** la incidencia del intento suicida repunta en la adolescencia, siendo la depresión uno de los principales factores de riesgo asociados. Esta investigación examina las contribuciones únicas al intento e ideación suicida de variables transdiagnósticas comúnmente asociadas con la depresión y la ansiedad: percepción anómala de la realidad, intolerancia a la incertidumbre y rumiación. **Método:** se llevó a cabo un estudio transversal en el que se evaluaron a 605 adolescentes ($M=13.22$, $DT=1.03$, 47% chicas). **Resultados:** la regresión lineal múltiple mostró que, controlando los niveles de depresión y ansiedad, la percepción anómala de la realidad y la intolerancia a la incertidumbre resultaban predictivas de la ideación suicida en chicas. En la regresión logística, los síntomas depresivos auto informados fueron más predictivos del intento suicida que los procesos cognitivos subyacentes. **Conclusiones:** en las chicas adolescentes, estas variables transdiagnósticas menos evaluadas parecen tener un papel importante en la ideación suicida. Sin embargo, sigue siendo la depresión la variable más predictiva para el intento suicida.

Palabras clave: diferencias de género, percepción anómala de la realidad, intolerancia a la incertidumbre, ideación suicida, adolescencia, depresión.

Suicide is among the leading causes of death worldwide among adolescents (15-19 years old) (World Health Organization [WHO], 2019). In 2019, 9% of high school students in the United States reported attempting suicide during the previous 12 months (Ivey-Stephenson et al., 2020). Suicide attempts were reported most frequently among girls compared to boys (11% vs. 6.6%) (Ivey-Stephenson et al., 2020). In Europe, the prevalence of suicide attempts among 15-16 year-old students ranges from 4.1% to 23.5% (Kokkevi et al., 2012).

Suicidal behavior refers to a variety of manifestations, ranging from ideation and planning, through suicidal communication to

suicidal attempts and completed suicide (Al-Halabí & Fonseca-Pedrero, 2021). There is no internationally agreed-upon set of terms, definitions, or classifications for this range of thoughts, communications, and behaviors (Silverman & De Leo, 2016). In a study by Goodfellow & De Leo (2018), a systematic literature review of existing nomenclatures was conducted, finding 13 contributions to nomenclatures of suicidal behavior (Goodfellow & De Leo, 2018). Suicidal ideation is defined by the APA Dictionary of Psychology as: "thoughts about or a preoccupation with killing oneself, often as a symptom of a major depressive episode."; while attempted suicide is defined as: "a deliberate but unsuccessful attempt to take one's own life" (American Psychological Association [APA], n.d.-a; n.d.-b).

Regarding the different risk factors involved in suicidal ideation and attempts, Carballo et al. (2020) distinguishes between clinical factors, such as depression (Park et al., 2005), substance use (Arria et al., 2009) or other psychiatric disorders (Kelleher et al., 2013). Miranda-Mendizabal et al. (2018) reported specific risk

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factors for girls such as eating disorders (Buhren et al., 2014) or bipolar disorder (Goldstein et al., 2005); while, for boys, specific risk factors were behavioral problems (Kaess et al., 2011) or suicidal behavior in friends (Swanson & Colman, 2013). A meta-analysis of 50 years of research on suicidality points out the top 5 risk factor categories for suicide ideation: prior suicide ideation, hopelessness, diagnosis of depression and diagnosis of anxiety, with mixed findings on the temporal associations between them and suicidal ideation (Franklin et al., 2017).

Depression is considered a major factor in the etiology of suicide in both children and adolescents (Goldston et al., 2009). Results from a cross-sectional study conducted with adolescents indicated that depressive symptomatology mediates the relationship between hopelessness and suicidal behavior (Spann et al., 2006). In a study by Gijzen et al. (2021), suicide ideation was directly related to most symptoms of adolescent depression. Loneliness, sadness, pessimism, family characteristics, self-hatred and self-blame were all strongly related to suicide ideation (Gijzen et al., 2021). These results are in line with the hypoconnectivity shown in cognitive control, self-referential thinking and processing salient information in depressed adolescent with suicidal ideation (Ordaz et al., 2021).

Anxiety disorders have also been associated with adolescent suicidal behavior, although in some studies their contribution to suicidal risk is attenuated after controlling for other factors such as depression (Vickers & McNally, 2004). Sareen et al. (2005), found that the presence of a prior anxiety disorder was a risk factor for suicidal ideation and attempts after controlling for the effects of other mental disorders. In a meta-analysis, 66.6% of the studies showed a significant association between having symptoms of anxiety and suicidal attempts (Soto-Sanz et al., 2019).

However, not all adolescents who think about or attempt suicide have a depressive or anxiety disorder (Arria et al., 2009). Recent studies have analysed the role of transdiagnostic processes to suicidal ideation and attempts in adolescents (Kelleher et al., 2013). These variables – anomalous perception of reality, intolerance of uncertainty and rumination – have been associated with both the course and severity of depressive and anxious disorders as well as other psychiatric disorders, with evidence that there are also gender differences in the presence of all three (Dekkers et al., 2016; Jose & Brown, 2008; Kelleher et al., 2012). Based on this, the present study examined the possible explanatory role of these three transdiagnostic variables to adolescent gender differences in suicidal ideation and attempts, over and above that which is explained by self-reported depressive and anxious symptoms.

Rumination, defined as repetitive thinking on a theme related to personal goals and concerns (Martin & Tesser, 1996), is considered a transdiagnostic variable underlying the development and comorbidity of multiple forms of psychopathology (Nolen-Hoeksema & Watkins, 2011). This variable has been positively related to both suicidal ideation and suicide attempts (Burke et al., 2016; Grassia & Gibb, 2009). In a meta-analysis conducted by Rogers and Joiner (2017), a large effect size for the association between rumination and suicidal ideation was found ($g = .74$), while for suicide attempting a smaller but significant effect size was found ($g = .26$). This association between rumination and suicidality has also been found in adolescents, with participants in one study showing a positive correlation between rumination and suicidal ideation at baseline and follow-up (Burke et al., 2016).

Anomalous perception of reality, another transdiagnostic variable associated with psychopathology (Kelleher et al., 2012), is defined as the set of subclinical psychotic experiences that do not reach the clinical threshold and that are distributed throughout the general population (Fonseca-Pedrero & Debbané, 2017). Epidemiological studies show that the average prevalence of anomalous perception of reality in the general population ranges from 5-8% (McGrath et al., 2015; Nuevo et al., 2012). In an investigation by Dolphin et al. (2015), with an adolescent sample, a reported prevalence of 13.7% for auditory hallucinations, 10.4% for visual hallucinations and 13.1% for paranoid ideas was obtained. Several studies have found associations between the presence of hallucinations and subclinical delusions and an increased risk of suicidal ideation and attempts in adolescents (Kelleher et al., 2013; Nishida et al., 2010).

Intolerance of uncertainty (IU), or the inability of an individual to withstand the aversive response that one feels when they perceive that there is uncertainty and that they do not have sufficient information to manage this uncertainty (Carleton et al., 2007), is another important transdiagnostic factor that has been associated with suicidality. IU has been found in a range of different psychiatric conditions (Gillet et al., 2018; Kesby et al., 2017; Zerach & Levi-Belz, 2019). This construct has demonstrated its usefulness by discriminating between adolescents with or without an anxiety disorder diagnosis (Comer et al., 2009). Intolerance of uncertainty also contributes to depression and diagnoses, as well as shows evidence of interacting with other transdiagnostic variables such as rumination (Barry et al., 2019).

There aren't many studies where the relation between IU and suicidality have been investigated. In a study by Ciarrochi et al. (2005), with college students, IU predicted suicidal ideation. In another investigation conducted with adults with obsessive-compulsive disorder no relation was found between IU and suicidality (Storch et al., 2017). In Zerach and Levi-Belz (2019), reported suicidal ideation and attempt was correlated with increased IU in war veterans. In another study, Martin et al. (2019), examined how facets of aggression moderate the associations between intolerance of uncertainty and thwarted belongingness/perceived burdensomeness (variables implicated in suicidal desire). Their results showed that aggressive facets can amplify the associations between intolerance of uncertainty and suicidal desire.

Although each of these three transdiagnostic constructs have been found to be associated with suicidality, there is also evidence that each of these constructs may differ in their severity between males and females. Gender differences in rumination emerge during adolescence, with levels that increase linearly for girls from 12 to 15 years old, but with limited increases in boys during the post-puberty period (Jose & Brown, 2008). Regarding gender differences in anomalous perception of reality, a higher prevalence of psychotic symptoms has been found among adolescent boys than girls (Kelleher et al., 2012) although there are also studies in which no gender differences have been found (Scott et al., 2009; Yamakasi et al., 2018) and others, with adult participants, have found a higher prevalence of auditory and visual hallucinations in women than men (Dolphin et al., 2015). Although most studies found no differences between adolescent boys and girls in IU (Dugas et al., 2012; Wright et al., 2016), Dekkers et al. (2016), found that girls showed higher levels of IU compared to boys.

Although there is evidence that rumination and anomalous perception of reality can contribute towards suicidality in adolescents, to our knowledge, no study has investigated the

association between intolerance of uncertainty and suicidal ideation and attempting in adolescents. In addition, studies in this area typically explore the contribution of individual variables to suicidality and no study has yet examined the unique contributions of all three of these transdiagnostic variables (and their interactions) to suicidal ideation and attempting when they are considered together. Furthermore, although there are likely to be important gender differences in the severity of each of these constructs, few studies have examined whether these constructs are differentially related to suicidality between adolescent males and females. In the present investigation we aim to provide such an analysis: Testing the three transdiagnostic variables (controlling for anxiety and depression) and the interactions between those transdiagnostic variables with anxiety and depression.

We hypothesised that, consistent with previous research, compared to adolescent boys, adolescent girls would show higher levels of suicidal attempting and ideation and that they would also show higher levels of self-reported anxious and depressive symptoms. Adolescent girls were also expected to report that they ruminate more and have more anomalous perceptions of reality compared to adolescent boys but there will be no differences for intolerance of uncertainty. These cognitive processes (rumination, intolerance of uncertainty and anomalous perception of reality) were in turn expected to explain unique variance in individual differences in suicidal ideation and attempts, even when controlling for depressive and anxious symptoms. We expect these findings to have important clinical implications, both for the improvement of strategies for detecting suicidal behaviour and for the development of better early intervention programmes for this age group.

Method

Participants

The sample was obtained incidentally from two high schools (7th, 8th and 9th grade) within Albacete. A total of 605 adolescents participated, with a mean age of 13.24 ($SD=1.02$) for girls and 13.20 ($SD=1.04$) for boys. In relation to the family composition of these adolescents, 77.5% lived with both parents, 19.5% had separated or divorced parents while 2.8% had a deceased or absent parent. 81% had working parents, 7.6% were unemployed and 11.4% worked for a few hours or were retired.

Instruments

Okasha suicide scale (Okasha et al., 1981). The Okasha suicide scale is a self-report questionnaire consisting of four items, where the first three items address the frequency and intensity of suicidal ideation: "Have you thought that life is not worth it?" "Have you ever wanted to be dead?" and, "Have you ever thought about ending your life?" The fourth item asks about previous suicide attempts: "Have you tried to kill yourself?" Participants must respond on Likert scales from 0= *never* to 6 = *many times*. The internal consistency of the scale is .89 (Salvo et al., 2009). For the data used in this study, Cronbach's alpha was .90.

Patient Information Measures Information System (PROMIS) pediatric anxiety and depression scales - short version (Quinn et al., 2014). The Patient-Reported Outcomes Measurement Information System (PROMIS) Pediatric measures were designed to assess symptoms and functioning in children and adolescents

(8-17 years). These two short version scales, consisting of eight items, have a Likert format with five response options (1= *never*, to 5 = *almost always*) assessing the frequency which young people experience symptoms of anxiety (observable behaviors related to fear, panic, excessive worry and motor or psychic agitation in different contexts) and depression (comprised of cognitive, affective, and behavioral indicators). In previous studies, the internal consistency of the scale was 0.83 for the Anxiety scale and 0.85 for the Depression Symptoms scale (Quinn et al., 2014). Cronbach's alpha for this study was .87 for the anxiety scale and .93 for depression scale.

Community Assessment of Psychic Experiences (CAPE-P15) Positive Scale (Capra et al., 2013). The CAPE-P15 scale is a short version of the CAPE (Community Assessment of Psychic Experiences) formed by 42 items, which evaluates three dimensions: positive, negative and depressive. In CAPE-P15 only the positive dimension is used, since it is considered the most predictive of anomalous perception in the general population. In previous studies, the internal consistency of the scale presents a Cronbach's alpha of .79 (Capra et al., 2013). Cronbach's alpha in the present study was .82.

Short Depressive Rumination Scale (SDRS) (Ricarte et al., 2018). This scale is made up of four items in Likert format (0=*never* from 10=*very often*). Participants have to answer to what extent they experience a series of situations when they are sad or depressed. Scores range from 0 to 40, with a higher score equating to higher rumination. In other studies, internal consistency of this measure has been found to be good (Ricarte et al., 2018). Cronbach's alpha for the data used in this study was .88.

Intolerance of uncertainty abbreviated version. IUS-12 (Carleton et al., 2007). The IUS-12 scale, short version of the IUS-12, consists of 12 items on five points Likert format (1= *never from* 5= *very often*). Participants have to answer to what extent each of the 12 statements can be applied to themselves. The scale is made up of two factors: *Prospective anxiety*, related to future situations and *Inhibitory anxiety*, related to the blockage in action and experience brought about by uncertainty. The internal consistency of the scale is typically good (Carleton et al., 2007) and in the present study Cronbach's alpha was .81.

Procedure

The questionnaires were administered in classes during school hours. Only those students who had obtained parental consent participated, having also been informed of the voluntary nature of their participation as well as the confidentiality of their answers. A researcher of the study was in charge of supervising all data collection as well as solving any doubts or problems that might arise. This study was conducted in accordance with the ethical standards of the American Psychological Association (APA, 2017) and was approved by the ethical committee of the Hospital of Albacete (N°2018/10/105).

Data Analysis

Data analysis was performed with SPSS 21.00 software. A one-way multivariate analysis of variance (MANOVA) was conducted to test the hypothesis that there would be significant differences between the different study variables according to gender. Then, correlational analyses (separated by gender) were

carried out to assess the possible relationship between suicidal ideation and attempt, anxiety, depression and the transdiagnostic variables rumination, anomalous perception of reality, intolerance of uncertainty. A multiple linear regression predicting individual differences in the severity of suicidal ideation, with all the sample, across Interactions between gender and the rest of the variables were also performed. Finally, a logistic regression for the dichotomous suicide attempt variable was performed, with the aim of checking to what extent (controlling the levels of depression and anxiety) rumination, anomalous perception of reality and intolerance of uncertainty could explain these outcome variables in adolescent girls and boys. Interactions between variables were also included in these models. In all regressions, variance inflation factors (VIF) were below 10 (indicating that multicollinearity was not an issue in the models), and Durbin-Watson values were very close to 2 (1.80 in girls, 1.84 in boys), indicating independence of model residuals (Field, 2013).

Results

Gender differences in suicidal ideation and suicide attempt and transdiagnostic variables

A statistically significant MANOVA effect was obtained, Pillais' Trace = .06, $F(6,567)= 6.45, p<.001$. There were significant differences between boys and girls in all variables analyzed (except for Intolerance of Uncertainty), with girls reporting more severe symptoms than boys.

Associations by gender

In both boys and girls, suicidal ideation correlated significantly and positively with all the transdiagnostic variables analyzed, with depression symptoms showing the strongest correlation in both groups.

Predicting suicidal ideation and suicide attempts

In the prediction of suicidal ideation, we performed a hierarchical regression where depression and anxiety were entered first, followed by anomalous perception of reality, intolerance of uncertainty and rumination in the next step. The change in R squared from the first to the second step was significant: $p=.003$. In the first

regression with all the sample, anomalous perception of reality ($p=.006$) and depression ($p<.001$) explained a significant amount of variance. The interactions between gender and anomalous perception of reality, $b= 0.101, SE= 0.030, p<.001, 95\% CI [0.04-0.16]$, rumination, $b= 0.057, SE= 0.015, p<.001, 95\% CI [0.03-0.09]$, depression $b= 0.060, SE= 0.020, p=.002, 95\% CI [0.02-0.10]$ and anxiety $b= 0.074, SE= 0.023, p=.002, 95\% CI [0.03-0.12]$, predicted a significant amount of variance in suicidal ideation. In the regression separated for gender, anomalous perception of reality ($p=.010$) and intolerance to uncertainty ($p=.027$) were significant in girls, even whilst including depression symptoms in the model. In boys, only depression symptoms ($p<.001$) was a predictor of suicidal ideation.

The principle of parsimony was used for the logistic regression of the dichotomous variable for suicide attempting (Field, 2013),

Table 2
Correlations between variables separated for gender

	(1)	(2)	(3)	(4)	(5)	(6)
Girls (n=285)						
(1) Cape P15	-					
(2) PROMISAnxiety	.603**	-				
(3) PROMISDepression	.620**	.697**	-			
(4) SDRS	.585**	.564**	.675**	-		
(5) IUS	.456**	.513**	.479**	.537**	-	
(6) Suicidal Ideation	.519**	.512**	.723**	.526**	.299**	-
Boys (n=320)						
(1) Cape-P15	-					
(2) PROMISAnxiety	.540**	-				
(3) PROMISDepression	.586**	.655**	-			
(4) SDRS	.468**	.451**	.551**	-		
(5) IUS	.432**	.474**	.450**	.436**	-	
(6) Suicidal Ideation	.362**	.352**	.544**	.349**	.253**	-

Note: CAPE P15: Community Assessment of Psychic Experiences-Positive Scale; SDRS: Short Depressive Rumination Scale; IUS: Intolerance of Uncertainty Scale
** p < 0.01; * p < 0.05

Table 3
Linear regression for the total sample and interactions

Effect	Estimate	SE	95% CI		p
			LL	UL	
CAPE-P15	0.058	0.021	0.02	0.10	.006
PROMISanxiety	-0.013	0.017	-0.05	0.02	.463
PROMISdepression	0.205	0.017	0.17	0.24	<.001
SDRS	0.017	0.011	-0.00	0.04	.105
IUS-12	-0.021	0.012	-0.04	0.00	.071
Gender	0.120	0.174	-0.22	0.46	.493
Gender × CAPE-P15	0.101	0.030	0.04	0.16	<.001
Gender × PROMISanxiety	0.074	0.023	0.03	0.12	.002
Gender × PROMISdepression	0.060	0.020	0.02	0.10	.002
Gender × SDRS	0.057	0.015	0.03	0.10	<.001

Note: CAPE-P15: Community Assessment of Psyquic Experiences. Positive Scale; IUS-12: Intolerance to Uncertainty Scale; SDRS: Short Depressive Rumination Scale. CI= confidence interval; LL= lower limit; UL= upper limit
R2: .439. Included only significant interactions

Table 1
Means, Standard Deviations, and One-Way Multivariate Analysis of Variance (One-Way MANOVA)

Measure	Girls		Boys		F(1,572)	□²
	M	SD	M	SD		
CAPE-15	22.84	5.67	21.69	5.19	6.318*	.011
PROMISAnxiety	19.37	7.40	16.86	6.68	17.074**	.029
PROMISDepression	16.74	8.54	14.15	6.72	15.800**	.027
IUS-12	30.92	9.42	30.92	8.48	.005	<.001
SDRS	15.28	10.10	11.08	10.36	20.596**	.035
Suicidal Ideation	1.67	2.54	1.06	1.90	10.700**	.018

Note: CAPE-P15: Community Assessment of Psyquic Experiences. Positive Scale; IUS-12: Intolerance of Uncertainty Scale; SDRS: Short Depressive Rumination Scale
** p<.01; * p<.05

obtaining a model with suicidal ideation as the only predictor variable for suicide attempts. In the interactions between variables in the total sample, the Wald criterion demonstrated that the interaction between anomalous perception of reality and suicidal ideation made a significant prediction to suicidal attempts ($p=7.116$), as well as the interaction between intolerance of uncertainty and gender ($p=12.262$). For both boys and girls, the Wald criterion demonstrated that only depression symptoms made a significant contribution to prediction of suicide attempts (Girls, $p=41.120$; Boys, $p=22.095$).

Discussion

The present study examined the contribution of three transdiagnostic cognitive variables to suicidality in adolescents. As hypothesized, adolescent girls reported higher depressive and anxious symptoms and higher levels of rumination and anomalous perception of reality. However, there were no gender differences in intolerance of uncertainty. These results are in line with previous literature, in which it was found that girls tend to have greater symptoms of anxiety, depression and rumination (Van Droogenbroeck et al., 2018). Although there is some disagreement between studies (Kelleher et al., 2012; Yamakasi et al., 2018), our findings are also in agreement with those suggesting that there is a higher prevalence of auditory hallucinations among women than men (Dolphin et al., 2015). The absence of any difference between boys and girls for intolerance of uncertainty is consistent with the other studies involving adolescent groups (Dugas et al., 2012; Wright et al., 2016).

Adolescent girls were also more likely than boys to report that they think about and have attempted suicide. This finding coincides with previous research conducted with adolescents around the world, in which a higher rate of suicidal ideation and attempting has been found in girls than boys (Fonseca Pedrero et al., 2018; Zhang et al., 2019).

Our findings suggest that although depression symptoms are an important contributor to suicidal ideation and attempting, there is also evidence that anomalous perception of reality and intolerance of uncertainty contribute to suicidal ideation amongst adolescent girls.

Regarding gender differences in the role of anomalous perception of reality, numerous investigations have been carried out relating this variable to suicidal ideation and attempts. In Kelleher et al. (2013), in which 1112 adolescents were evaluated, it was found that the presence of psychotic symptoms predicted an increased risk of suicide attempts, both in boys and girls, in the following 12 months. Perceptual disturbances and ideas of reference could be interpreted as warning signs for suicidal behaviors within the adolescent population (Jang et al., 2014). Our findings suggest that although anomalous perception of reality contributed to suicidal ideation in the whole sample, this effect was particularly prominent amongst girls.

The few investigations carried out on intolerance of uncertainty and suicidal ideation and attempts have yielded inconsistent findings. In fact, to our knowledge, no study has investigated the association between intolerance of uncertainty and suicidal ideation and attempting in adolescents, and gender differences in these associations. In an investigation with university students it was found that intolerance of uncertainty predicted suicidal ideation in both men and women (Ciarrochi et al., 2005). In another study conducted with men and women with OCD, no relationship was found between suicidal ideation and intolerance of uncertainty (Storch et al., 2017). Our findings suggest that in adolescent girls, but not boys, intolerance of uncertainty can be predictive of suicidal ideation.

The current research shows novel results regarding gender differences in the predictive role of transdiagnostic variables to adolescent suicidal ideation. The findings suggest that regardless of the levels of depression symptoms present in the samples, intolerance of uncertainty and anomalous perception of reality may be relevant variables in the prediction of suicidal ideation and attempting in the adolescent population, especially in adolescent girls, where these variables have unique contributions.

Due to the cross-sectional nature of the research, causal inferences cannot be established between the constructs. It would be advisable for future research to carry out studies of a longitudinal nature, in which the relationships between variables such as intolerance to uncertainty or anomalous perception of reality and adolescent suicidal behaviour can be better observed. The selection of the sample, carried out incidentally, can be considered another limitation, being necessary for futures studies an analysis with a more heterogeneous and representative sample. Another limitation could be the age of the sample, which ranges from 12 to 15 years, representing only a part of the whole adolescent age range, period where psychopathology and its clinical significance can vary greatly (Van Droogenbroeck et al., 2018). For future studies, it would be advisable to use specific scales for Spanish adolescents, like SENTIA (Díez-Gómez et al., 2020), a brief measuring instrument specifically constructed and validated for the assessment of suicidal behavior in Spanish adolescents.

Although completed suicide is a statistically rare event, its health, social, economic, educational, family, and psychological impacts are so clear that suicide prevention remains a priority (Al-Halabí & Fonseca-Pedrero, 2021). Among suicide prevention interventions, school-based awareness programs have proven to be the most effective (Zalsman et al., 2016). One of the reasons these interventions are of particular interest is the role most of the risk and protective factors for suicidal behavior play before the age of 25 (Fusar-Poli, 2019).

Table 4
Logistic regression for the total sample and interactions

	B	S.E	Wald	df	p	Exp(B)
Gender	-.061	.549	.012	1	.912	.941
Cape-P15	.021	.054	.147	1	.701	1.021
PROMISanxiety	-.055	.054	1.038	1	.308	.947
PROMISdepression	-.027	.044	.358	1	.550	.974
SDRS	.018	.030	.366	1	.545	1.018
IUS	-.032	.033	.931	1	.335	.969
Suicidal ideation	1.086	.146	55.281	1	<.001	2.964
IUSxGender	.327	.093	12.262	1	<.001	1.386
Cape-P15xSuicidal ideation	.088	.033	7.116	1	.008	1.092

Note: CAPE-P15: Community Assessment of Psyquic Experiences. Positive Scale; IUS-12: Intolerance to Uncertainty Scale; SDRS: Short Depressive Rumination Scale; Okasha: Suicidal Ideation Scale
Only included significant interactions. For the total sample: R^2 Nagelkerke .747; For the interactions: R^2 Nagelkerke .812

While previous research has indicated the possible explanatory role of the transdiagnostic variables captured here on suicidal behaviour, and although these variables are known to differ in their prevalence and severity between males and females, none of these studies have analyzed whether their contribution to suicidal ideation and attempting can differ as a function of gender. In this study we found that girls with an anomalous perception of reality and who are intolerant of uncertainty are more likely to have thought about suicide. This association was present even when depression symptoms were accounted for. These results indicate not only the importance of taking these transdiagnostic variables into account when attempting to detect suicidal behaviors and thoughts

in adolescents, but also attending to the possible differentiating characteristics of this phenomenon in adolescent boys and girls, which guide the implementation of prevention and intervention strategies adapted to the characteristics of each group. Early identification through screening and early effective intervention are among the best forms of prevention (Díez-Gómez et al., 2020).

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